

Chapter 7

Response to Comments

SCH# 2013081079

Volume 1-A

REVISIONS to the KERN COUNTY ZONING ORDINANCE – 2020 (A)
Focused on Oil and Gas Local Permitting



Kern County
Planning and Natural Resources Department
Bakersfield, California

January 2021

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**PLANNING AND NATURAL
RESOURCES DEPARTMENT**

Planning
Community Development
Administrative Operations

January 29, 2021

File: Zoning Ordinance Amendment (2020 A)

ADDRESSEE LIST (See Distribution List)

Re: Chapter 7 - Response to Comments for Draft Supplemental Recirculated Environmental Impact Report (2020/2021) – for Revisions to the Kern County Zoning Ordinance – (2020 A), focused on Oil and Gas Local Permitting

Dear Interested Party:

Enclosed is a document entitled Chapter 7 - Response to Comments, for the above-referenced project. Section 15088 of the California Environmental Quality Act Guidelines requires the Lead Agency to evaluate comments on environmental issues received from persons who reviewed the Draft Supplemental Recirculated Environmental Impact Report (SREIR) and prepare a written response addressing each comment. This document is Chapter 7 of the Final SREIR. The entire Final SREIR document and documents referenced in the Final SREIR are available for review online at <https://kernplanning.com/SREIR2020-oil-gas-zoning-revisions/> or at the Planning and Natural Resources Department, 2700 "M" Street, Suite 100, Bakersfield, CA 93301 by appointment.

A public hearing has been scheduled with the Kern County Planning Commission to consider this request on February 11, 2021 at 7:00 p.m. or soon thereafter, at the Chambers of the Board of Supervisors, First Floor, Kern County Administrative Center, 1115 Truxtun Avenue, Bakersfield, California. Due to COVID-19 and subsequent local emergency declarations by the Kern County Board of Supervisors, Staff is evaluating the possibility of facilitating an alternative form of public participation during this hearing. For updates regarding how public participation will be conducted during this hearing, please contact the project planner listed on this notice and continue to review the Kern County Planning Commission Agenda which will be released for public review the week prior to the scheduled hearing.

Thank you for your participation in the environmental process for this project. All comments are provided to the decision-makers and included in the public record for this project. If you have any questions regarding this letter, please contact Cindi Hoover, Planner III, at (661) 862-8629 or hooverc@kerncounty.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Cindi Hoover".

Cindi Hoover, Planner III
Advance Planning Division

COMMENTING AGENCIES AND INTERESTED PERSONS: See Attached Distribution List

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WO #PP13280
I:\Planning\WORKGRPS\WP\LABELS\
SEIR - Oil & Gas (2nd) labels.doc
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Chapter 7

Response to Comments

SCH# 2013091062

Volume 1-A

***REVISIONS to the KERN COUNTY ZONING ORDINANCE –
2020 (A)***
Focused on Oil and Gas Local Permitting

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January 2021

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Acronyms and Abbreviations

ACS	American Community Survey
AEWSD	Arvin-Edison Water Storage District
AFY	acre-feet per year
ANT Report	<i>ANT Proposal: Emissions Validation and Mitigation Menu</i>
ASF	age sensitivity factor
Bbl	barrel
Brown Act	Ralph M. Brown Act
BTEX	benzene, toluene, ethylbenzene, and xylene
CA	California
CAAQS	California Ambient Air Quality Standards
CalGEM	California Geologic Energy Management Division
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCST	California Council on Science and Technology
CEQA	California Environmental Quality Act
CNEL	community noise equivalent level
County	Kern County Planning and Natural Resources Department
CRC	California Resources Corporation
CSU	California State
CUP	Conditional Use Permit
CVRWQCB	Central Valley Regional Water Quality Control Board
CWD	Cawelo Water District
dB	decibels
Department	Kern County Planning and Natural Resources Department
DNL	day-night average level; <i>also</i> L_{dn}
DOF	California Department of Finance
DOGGR	California Division of Oil, Gas, and Geothermal Resources (now CalGEM)
DPM	diesel particulate matter
EIR	Environmental Impact Report
EO	Executive Order
EOR	enhanced oil recovery

EPA	U.S. Environmental Protection Agency
ERA	Emission Reduction Agreement
ERC	Emission Reduction Credit
EWMA	Eastside Water Management Area
FS	feasibility study
FTA	FracTracker Alliance
GAMAQI	<i>Final Draft Guidance for Assessing and Mitigating Air Quality Impacts</i> (Feb. 19, 2015)
General Plan	Kern County General Plan
GR	Global Response
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HAP	hazardous air pollutant
HARP2	Hotspots Analysis and Reporting Program, Version 2
HP	horsepower
HRA	Health Risk Assessment
ISR	Indirect Source Rule
K	Kelvins
km	kilometer
KTWD	Kern-Tulare Water District
lbs/hr	pounds per hour
lbs/yr	pounds per year
L _{dn}	day-night average sound level; <i>also</i>
L _{eq}	equivalent continuous sound pressure level
m ³	cubic meters
M&I	Municipal and Industrial
MM	Mitigation Measure
MMBtu/hr	million British thermal units per hour
MMRP	Mitigation, Monitoring, and Reporting Program
MRP	Monitoring and Reporting Program
NAAQS	National Ambient Air Quality Standards
NKWD	North Kern Water District
NO _x	oxides of nitrogen
NO ₂	nitrogen dioxide
NSR	New Source Review

OEHHA	Office of Environmental Health Hazards Agency
OGD	oil and gas development
OG-ERA	Oil and Gas Emission Reduction Agreement
OPNGAS	City of Los Angeles, Department of Public Works, Office of Petroleum and Natural Gas Administration and Safety
OPR	Office of Planning and Research
Ordinance	Kern County Zoning Ordinance
PAH	polycyclic aromatic hydrocarbon
PHMSA	Pipeline and Hazardous Materials Safety Administration
PM	particulate matter
PM ₁₀	particulate matter up to 10 microns in diameter
PM _{2.5}	particulate matter up to 2.5 microns in diameter
<i>POWER</i>	<i>Protecting Our Water and Environmental Resources v. County of Stanislaus</i> (2020) Case No. S251709, 10 Cal.5th 479
Project	Amendment to Chapter 19.98 (Oil and Gas Production) of the Kern County Zoning Ordinance
REL	Reference Exposure Level
ROG	reactive organic gases
SB	Senate Bill
SEIR	Supplemental Environmental Impact Report
SEL	sound exposure level
SCAQMD	South Coast Air Quality Management District
SGMA	Sustainable Groundwater Management Act
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SPAL	Small Project Analysis Level
SREIR	Supplemental Recirculated Environmental Impact Report
SWID	Shafter-Wasco Irrigation District
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TDS	total dissolved solids
TEOR	thermally enhanced oil recovery equipment
tpy	tons per year
UIC	Underground Injection Control
VERA	Voluntary Emission Reduction Agreement
VOC	volatile organic compound

WDR	Waste Discharge Requirement
WDWA	Westside District Water Authority
WST	well stimulation treatment

Chapter 7

Response to Comments

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Chapter 7

Response to Comments

7.1 Introduction

7.1.1 Purpose

As defined by Section 15050 of the California Environmental Quality Act (CEQA) Guidelines, the Kern County Planning and Natural Resources Department is serving as “Lead Agency” for preparation of the Supplemental Recirculated Environmental Impact Report (SREIR) (2020/2021) for the proposed Revisions to the Kern County Zoning Ordinance – (2020 (A)), focused on Oil and Gas Local Permitting (“Project” or “proposed Project”). The Final SREIR presents the environmental information and analyses that have been prepared for the Project, including comments received addressing the adequacy of the Draft SREIR, and responses to those comments. The Draft SREIR was circulated twice for a 45-day public review period each time and is denoted as SREIR (August 2020) and SREIR (October 2020). All comments have been included and responses provided for each of the circulations. In addition to the responses to comments, clarifications, corrections, or revisions have been made to the Draft SREIR (October 2020) and are included in this Chapter 7, Response to Comments. The Final SREIR, which includes the responses to comments, the Draft SREIR, and the Mitigation Monitoring Program, will be used by the Planning Commission and Board of Supervisors in the decisionmaking process for the Project.

7.1.2 Public Process

Kern County prepared and circulated an Initial Study (IS)/Notice of Preparation (NOP) to the State Clearinghouse (SCH# 2013081079), public agencies, special districts, responsible and trustee agencies, and other interested parties for review and comment on April 29, 2020. In conjunction with this public notice, Kern County hosted a virtual scoping meeting at 1:30 p.m. on May 13, 2020, via a Microsoft Live Event. The purpose of the meeting was to introduce the Project and to solicit input from agencies, organizations, and other interested parties regarding the proposed Project, alternatives, mitigation measures, and environmental impacts to be analyzed in the SREIR. Comments received during the 30-day review period were used in the preparation of the Draft SREIR and can be found in Appendix A of the Draft SREIR.

The Draft SREIR (August 2020) prepared incorporated public and agency responses to the IS/NOP and scoping process. The Draft SREIR (August 2020) was circulated for review and comment to appropriate agencies and additional individuals and interest groups that have requested to be notified of EIR projects. Per Section 15105 (Public Review Period for a DEIR or a Proposed Negative Declaration or Mitigated Negative Declaration) of the State CEQA Guidelines, Kern County provided a 45-day public review period.

A virtual public workshop was held on August 17, 2020 to inform interested parties about the Draft SREIR structure, contents, and opportunities to comment on the Draft SREIR.

Subsequent to the 45-day public comment period for the Draft SREIR (August 2020), the Draft SREIR was revised, including additional information and incorporating all comments received during the initial 45-day public comment period. The Draft SREIR (October 2020) was recirculated for an additional 45-day public review and comment period beginning October 30, 2020. A virtual public workshop was held on November 10, 2020, to inform interested parties about additional revisions to the Draft SREIR and opportunities to comment.

Participation instructions and PowerPoint presentations used during the two virtual public workshops, as well as comments received and detailed responses, are provided in Section 7.2.2 for the August 17, 2020, public workshop, and in Section 7.3.2 for the November 10, 2020, public workshop.

The correspondence received at the August 17, 2020, and November 10, 2020, virtual public workshops are included in Sections 7.2.2, and 7.3.2, respectively. Letters received separately from the public workshop are included, with detailed responses, in Sections 7.2.6, and 7.3.6.

7.1.3 Revised Summary of Impacts, Mitigation Measures, and Significance Conclusions

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Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier								
Agricultural Resources												
Impact 4.2-1 Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to Non-Agricultural Use	Potentially significant	MM 4.2.-1 For Oil and Gas Conformity Reviews that are 1) on land designated Prime, Farmland of Statewide Importance, or Unique Farmland; and 2) that have been actively farmed five years or more out of the last 10 years; and 3) have a water allocation sufficient for farming from any source shall have the following siting requirements: A. All Oil and Gas Conformity Reviews permitted after the effective date of this ordinance shall have a site plan that contains no more than the following area limitations per well. All storage, parking, and oil activities shall be conducted only on the approved site plan acreage. <table><tr><th>Subarea</th><th>Acreage (Gross)</th></tr><tr><td>Western</td><td>2.0</td></tr><tr><td>Central</td><td>3.0</td></tr><tr><td>Eastern</td><td>1.2</td></tr></table> B. No permit for a new well shall be issued if the applicant has <u>owns or controls</u> legacy unused oil and gas equipment on the same legal parcel. <u>An applicant shall be deemed to own or control legacy equipment if, as of the date the application is filed, it is owned by (i) the applicant, (ii) an entity that controls or is controlled by the applicant, or (iii) an entity that has hired the applicant as an independent contractor.</u> The legacy oil and gas equipment shall be removed inclusive of compliance with applicable legal requirements (e.g., well plugging and abandonment requirements under state or federal regulations), and restoration of the surface grade consistent with surrounding lands on the parcel completed before any new wells activity can commence. A full plan and details of actions needed to remove the legacy equipment shall be submitted with the site plan, be shown on a detail of the site plan, and be a condition of the approved permit. For farmland parcels in Tier 1, when both the surface and minerals are owned by the applicant, this measure does not apply. C. Siting and construction of new disposal ponds are prohibited.	Subarea	Acreage (Gross)	Western	2.0	Central	3.0	Eastern	1.2	Impacts would be significant and unavoidable.	All Tiers
Subarea	Acreage (Gross)											
Western	2.0											
Central	3.0											
Eastern	1.2											
Impact 4.2-2 Conflict with Existing Zoning For Agricultural Use or a Williamson Act Contract	Less than significant	No mitigation measures are required.	Less than significant	All Tiers								
Impact 4.2-3 Conflict with Existing Zoning for, or Cause Rezoning of, Forest Land or Timberland	No impact	No mitigation measures are required.	No impact	All Tiers								

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.2-4 Result in the Loss of Forest Land or Conversion of Forest Land to Non-Forest Use	No impact	No mitigation measures are required.	No impact	All Tiers
Impact 4.2-5 Involve Other Changes in the Existing Environment Which, Because of Their Location or Nature, Could Result in Conversion of Farmland to Non-agricultural Use or Conversion of Forest Land to Non-Forest Use	Potentially significant	MM 4.2-2 To protect crops and structures adjacent to oil and gas activities on active agricultural lands, each Applicant/operator shall comply with the following mitigation measures set forth in other chapters of this Environmental Impact Report: a. Surface water runoff and drainage on the well pads shall be mitigated as described in mitigation measures for Hydrology and Water Quality. b. A Spill Prevention Countermeasure and Contingency Plan or Division of Oil Gas and Geothermal Resources Assembly Bill 1960 spill plan, as applicable, shall be prepared for the site and oil and chemical spills treated in accordance with the Division of Oil Gas and Geothermal Resources Senate Bill 4 Regulations for the site to protect adjacent farmland, as described in mitigation measures for Hazards. c. Speed limits for oil and gas trucks shall be posted on unpaved roads to reduce dust generation; in the absence of signage, speed limits shall be limited to 25 miles per hour (or an alternate, more stringent dust suppression standard as adopted by the San Joaquin Valley Air Pollution Control District), and Applicants shall attest that employees have been trained in the adopted speed limits. d. Unpaved roads shall be watered or otherwise treated for dust suppression and control as described in Mitigation Measure for Air Quality, unless speeds are restricted to 15 mph. e. Vehicle tracking control shall be installed where unpaved roads intersect with public paved roads, to prevent tracking of mud, dust, and weed seeds off site, unless speeds are restricted to 15 mph. This shall consist of a 50-foot length of a 3 inch-thick layer of gravel one inch or larger in diameter (or an alternate, more stringent dust suppression technique as approved by the San Joaquin Valley Air Pollution Control District). f. Stormwater control shall be required at construction sites during well drilling, reworking, and/or decommissioning as described in mitigation measures for Hydrology. g. Hazardous materials shall be stored within secondary containment as described in mitigation measures for Hazards. h. Overhead electrical or communication lines shall be shown on the Site Plan, and shall be aligned with existing roads, existing lines and easements, existing private driveways and/or parallel to tree or row crops. Underground pipelines serving the Project shall be shown on the Site Plan with locations marked and recorded with USAA, and periodically inspected and maintained as described in mitigation measures for Hazards.	Significant and Unavoidable	All Tiers
Impact 4.2-6 Result in the Cancellation of an Open Space Contract Made Pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for Any Parcel of 100 or More Acres	No impact	No mitigation measures are required.	No impact	All Tiers

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.2-7 Substantially decrease the productivity of livestock grazing activity within Kern County	Less than significant	No mitigation measures are required	Less than significant	
Impact 4.2-8 Cumulative Impacts to Agricultural or Forest Resources	Potentially significant	Implement mitigation measure MM 4.2-1 .	Significant and unavoidable	All Tiers
Impact 4.2-9 Cumulative Impacts to Rangeland/Grazing Land	Potentially significant	No mitigation measures are required	Less than significant	
Air Quality				
Impact 4.3-1 Conflict With or Obstruct Implementation of the Applicable Air Quality Plan	Potentially significant	<p>MM 4.3-1 Consistent with the requirements of the San Joaquin Valley Air Pollution Control District Regulation II-Permits, the Applicant shall obtain an Authority to Construct permit and a Permit to Operate for any facility or equipment requiring a permit from the San Joaquin Valley Air Pollution Control District, such as stationary sources required to obtain permits pursuant to District Rule 2010. All emissions increases from permitted equipment shall comply with District Rule 2201.</p> <p>MM 4.3-2 The Applicant shall develop and implement a Fugitive Dust Control Plan in compliance with San Joaquin Valley Air Pollution Control District fugitive dust suppression regulations. The Fugitive Dust Control Plan shall include:</p> <ul style="list-style-type: none">a. Name(s), address(es), and phone number(s) of person(s) responsible for the preparation, submission, and implementation of the plan.b. Description and location of operation(s).c. Listing of all fugitive dust emissions sources included in the operation.d. The following dust control measures shall be implemented:<ul style="list-style-type: none">1. All onsite unpaved roads shall be effectively stabilized using water or chemical soil stabilizers that can be determined to be as efficient as or more efficient for fugitive dust control than California Air Resources Board approved soil stabilizers, and that shall not increase any other environmental impacts including loss of vegetation.2. All material excavated or graded will be watered to prevent excessive dust. Watering will occur as needed with complete coverage of disturbed areas. The excavated soil piles will be watered as needed to limit dust emissions to less than 20% opacity or covered with temporary coverings.3. Construction activities that occur on unpaved surfaces will be discontinued during windy conditions when winds exceed 25 miles per hour and those activities cause visible dust plumes that exceed the SJVAPCD 20% opacity standard.4. Track-out debris onto public paved roads shall not extend 50 feet or more from an active operation and track-out shall be removed or isolated such as behind a locked gate at the conclusion of each workday, except on agricultural fields where speeds are limited to 15 mph.5. All hauling materials should be moist while being loaded into dump trucks.6. All haul trucks hauling soil, sand, and other loose materials on public roads shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions).7. Soil loads should be kept below 6 inches or the freeboard of the truck.	Less than significant	All Tiers

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<div><div><div>8. Drop heights when loaders dump soil into trucks shall not exceed 5 feet above the truck.</div><div>9. Gate seals should be tight on dump trucks.</div><div>10. Traffic speeds on unpaved roads shall be limited to 25 miles per hour.</div><div>11. All grading activities shall be suspended when visible dust emissions exceed 20%.</div><div>12. Other fugitive dust control measures as necessary to comply with San Joaquin Valley Air Pollution Control District Rules and Regulations.</div><div>13. Disturbed areas shall not exceed those shown on the Site Plan.</div><div>14. Disturbed areas should be re-vegetated as soon as possible after disturbance if area is no longer needed for oil and gas activities.</div></div><div><div>MM 4.3-3</div><div>All off-road construction diesel engines not registered under California Air Resources Board’s Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower or more, shall meet, at a minimum, the Tier 3 California Emission Standards for Off-road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 3 engine is not available for any off-road engine larger than 100 horsepower, that engine shall be equipped with retrofit controls that would provide nitrogen oxides and particulate matter emissions that are equivalent to Tier 3 engine.</div></div><div><div><div>d. All equipment shall be turned off when not in use. Engine idling of all equipment shall be limited to five minutes, except under exemptions specified in California Code of Regulations Title 13 Section 2449(d)(2)(A).</div><div>e. All equipment engines shall be maintained in good operating condition and in proper tune per manufacturers’ specifications.</div></div><div><div>MM 4.3-4</div><div>To further reduce emissions of oxides of nitrogen from on-road heavy-duty diesel haul vehicles:</div><div><div>a. 2007 engines or pre-2007 engines shall comply with California Air Resources Board retrofit requirements set forth in California Code of Regulations Title 13 Section 2025.</div><div>b. All on-road construction vehicles, except those meeting the 2007/California Air Resources Board-certified Level 3 diesel emissions controls, shall meet all applicable California on-road emission standards and shall be licensed in the State of California. This does not apply to worker personal vehicles.</div><div>c. All on-road construction vehicles shall be properly tuned and maintained in accordance with the manufacturers’ specifications.</div></div></div></div></div>		
Impact 4.3-2 Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region is Non-Attainment Under an Applicable Federal or State Ambient Air Quality Standard	Potentially significant	Implement MM 4.3-1 through MM 4.3-4 , as described above.	Significant and unavoidable	All Tiers

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier																										
Impact 4.3-3 Expose Sensitive Receptors to Substantial Pollutant Concentrations	Potentially significant	MM 4.3-5 The Site Plan Application for an Oil and Gas Conformity Review shall include a Site Vicinity Figure showing the location of any sensitive receptor(s) within 4,000 feet of the construction site (potential impact area) for the proposed new well or other ancillary facility or equipment (excluding pipelines). <div><div>a.</div><div>If there are no sensitive receptors within this potential impact area, then no construction mitigation measures shall be required and the statement shall be placed as a note on the site plan.</div></div> <div><div>b.</div><div>The well site and nearest property line of a sensitive receptor shall be permitted using both maps and coordinates on the map. If there are sensitive receptors within the potential impact area, then additional information must be provided showing the distance from the closest edge of the well pad to the property line of the nearest sensitive receptor. The minimum distances shall be as follows:</div></div> <table><tr><td></td><td>Minimum Mitigation Trigger Distance from Well Site to Adjacent Property Line of an Existing Sensitive Receptor (Feet)</td></tr><tr><td colspan="2">Western Subarea</td></tr><tr><td>10,000</td><td>367</td></tr><tr><td>5,000</td><td>116</td></tr><tr><td>2,000</td><td>NA</td></tr><tr><td colspan="2">Central Subarea</td></tr><tr><td>10,000</td><td>367</td></tr><tr><td>5,000</td><td>116</td></tr><tr><td>2,000</td><td>NA</td></tr><tr><td colspan="2">Eastern Subarea</td></tr><tr><td>10,000</td><td>296</td></tr><tr><td>5,000</td><td>NA</td></tr><tr><td>2,000</td><td>NA</td></tr></table> <div><div>c.</div><div>If the <u>well is located within the above</u> distances <u>set forth in (b), above, cannot be met</u>, and for existing wells that are subject to an Oil and Gas Conformity Review for redrilling or other permitted activities, the Applicant shall provide a site-specific risk assessment to the San Joaquin Valley Air Pollution Control District, which shall include implementation of one or more of the following risk minimization measures, or other such measures that are demonstrated by the Applicant to the San Joaquin Valley Air Pollution Control District, to achieve a level of risk less than the threshold risk level. Written confirmation shall be provided from the San Joaquin Valley Air Pollution Control District that the activity that is the subject of the application will not exceed the risk threshold. The following is a list of accepted risk minimization measures that shall be considered for inclusion by the San Joaquin Valley Air Pollution Control District:</div></div> <div><div>1.</div><div>Placement of engines in the potential impact area away from the sensitive receptors.</div></div>		Minimum Mitigation Trigger Distance from Well Site to Adjacent Property Line of an Existing Sensitive Receptor (Feet)	Western Subarea		10,000	367	5,000	116	2,000	NA	Central Subarea		10,000	367	5,000	116	2,000	NA	Eastern Subarea		10,000	296	5,000	NA	2,000	NA	Significant and unavoidable	All Tiers
	Minimum Mitigation Trigger Distance from Well Site to Adjacent Property Line of an Existing Sensitive Receptor (Feet)																													
Western Subarea																														
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Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<div><div></div><div><div>2. Utilize directional drilling to locate rig away further from the sensitive receptor(s).</div><div>3. Use of late-model engines, low-emission diesel products, alternative cleaner fuels (e.g., natural gas or liquefied petroleum gas), engine retrofit technology, add-on devices such as diesel particulate filters or oxidation catalyst, and/or other options as such become available to reduce emissions from off-road and other equipment.</div><div>4. Utilize electricity line power if available or deploy mobile solar panels with batteries for electricity.</div><div>5. Shutdown all equipment when not in use, and otherwise minimize engine idling by limiting idling to 15 minutes.</div><div>6. Use of automatic rigs.</div><div>7. Written confirmation from the identified sensitive receptor or receptors that the residents, business, church, or school agree to voluntary relocation or restrictions on receptor activities for the duration of construction activities with a specific timeframe for completion and details of any agreement.</div></div></div>		
		<div><div>MM 4.3-6</div><div>The following measures shall be implemented to address Valley Fever and pandemics:<div><div>A. Applicants shall include in their Worker Environmental Awareness Program information on how to recognize the symptoms of Valley Fever and to promptly report suspected symptoms of work-related Valley Fever to a supervisor. A Valley Fever informational handout shall be provided to all onsite construction personnel. The handout shall, at a minimum, provide information regarding the symptoms, health effects, preventative measures, and treatment. Additional information and handouts can be obtained by contacting the Kern County Public Health Services Department. Onsite personnel shall be trained on the proper use of personal protective equipment, including respiratory equipment. National Institute for Occupational Safety and Health (NIOSH)-approved respirators shall be provided to onsite personal, upon request as part of the Worker Environmental Awareness Training Program.</div><div>B. Applicants shall pay a \$25 fee per individual well on Oil and Gas Conformity Reviews to be used by the Kern County Public Health Services Department for the specific purposes of continued Valley Fever education and outreach.</div><div>C. Applicants shall implement all orders related to the COVID-19 pandemic or any other pandemic mandated by Kern County Public Health on well sites and related to worker safety.</div></div></div></div>		
Impact 4.3-4 Result in Other Emissions Such as Those Leading to Odors Adversely Affecting a Substantial Number of People	Potentially significant	<div><div>MM 4.3-7</div><div>Applicant shall submit an Odor Complaint Management Plan to the County prior to receiving its first Site Plan conformity review approval. The Plan shall include a designated contact for odor complaints, creation of a log for odor complaints, and protocol for handling odor complaints. The Odor log and report files shall be available for public review upon request.</div></div>	Significant and unavoidable	All Tiers
Impact 4.3-5 Result in Other Cumulatively Considerable Air Quality Impacts	Potentially significant	<div><div>Implement MM 4.3-1 through MM 4.3-7, as described above.</div><div><div>MM 4.3-8</div><div>For criteria emissions, not required to be offset under a District Rule as described in MM 4.3-1, and for Project vehicle and other mobile source emissions, the County will enter into an emission reduction agreement with the San Joaquin Valley Air Pollution Control District, pursuant to which the Applicant shall pay fees to fully offset Project emissions of NOx (oxides of nitrogen), ROG (reactive organic gases), PM10 (particulate matter of 10 microns or less in diameter), and PM2.5 (particulate matter of 2.5 microns or less in diameter) (including as applicable mitigating for reactive organic gases by additive reductions of particulate matter of 10 microns or less in diameter) (collectively, “designated criteria emissions”) to avoid any net increase in these pollutants. The air quality mitigation fee shall be paid to the County as</div></div></div>	Significant and unavoidable	All Tiers

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<p>part of the Site Plan review and approval process, and shall be used to reduce designated criteria emissions to fully offset Project emissions that are not otherwise required to be fully offset by District permit rules and regulations.</p> <p>As an alternative to paying the fee, an Applicant may reduce emissions for one or more designated criteria emissions through actual reductions in air emissions from other Applicant sources, as submitted to the County and validated by the District. This Project offset requirement alternative shall be enforced by the County and verified by San Joaquin Valley Air Pollution Control District, and must be approved in advance by the San Joaquin Valley Air Pollution Control District. If a voluntary emission reduction agreement is not executed by the County and San Joaquin Valley Air Pollution Control District, then each Applicant must mitigate for the full amount of designated criteria pollutants as verified by the San Joaquin Valley Air Pollution Control District, with evidence of such District-verified offsets presented as part of the Site Plan Conformity Review application documentation.</p> <p>Examples of feasible air emission reduction activities that may be funded by air quality fees paid by Applicant or proposed and implemented by the Applicant under the emission reduction agreement include, but are not limited to, the following:</p> <ul style="list-style-type: none">a. Replacing or retrofitting diesel-powered stationary equipment such as motors on generators, pumps and wells with electric or other lower-emission engines that are not subject to Title V reductions.b. Replacing or retrofitting diesel-powered school, transit, municipal and other community mobile sources such as buses, car fleets, and maintenance equipment, with electric or other lower-emission engines.c. Reducing emissions from public infrastructure sources such as water and wastewater treatment and conveyance facilities, and reducing water-related emissions through water conservation and reclamation.d. Funding lower-emission equipment and processes for local businesses, schools, non-profit and religious institutions, hospitals, city and county facilities.		
Hydrology and Water Quality				
Impact 4.9-1 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.	Potentially significant	<p>MM 4.9-1 The Applicant shall comply with all applicable federal, state, regional and local agency water quality protection laws and regulations, and commonly utilized industry standards, including (where applicable) obtaining coverage under the stormwater construction general permit and industrial general permit issued by the State Water Resources Control Board and complying with industry stormwater management standards for construction and operational activities. The applicant shall obtain all required permits from the Geologic Energy Management Division.</p> <p>MM 4.9-2 A. Oil and Gas activities in Tier I shall comply with the following.</p> <ul style="list-style-type: none">1. In areas subject to National Pollutant Discharge Elimination System stormwater permitting requirements, project applicants shall file a Notice of Intent to the State Water Resources Control Board to comply with the statewide General Permit for Discharges of Stormwater Associated with Construction Activities (Construction General Permit State Water Resources Quality Control Board Order No 2009-009-DWO) (as such permit may be amended, revised or superseded) prior to undertaking all ground-disturbing activities greater than one acre and shall prepare and implement a Stormwater Pollution Prevention Plan for construction activities on the Project site in accordance with the Construction General Permit. For facilities requiring coverage under the Construction General Permit, the site-specific Stormwater Pollution Prevention Plan shall include measures to achieve the following objectives: (1) all pollutants and their sources, including sources of sediment associated with construction activity are controlled; (2) all non-stormwater discharges are identified and either eliminated, controlled and treated, (3) site Best Management Practices are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity and (4) stabilization Best Management Practices to reduce or eliminate pollutants after construction are completed. The Stormwater Pollution Prevention Plan shall be prepared by a qualified preparer and shall include the minimum	Less than significant	All Tiers

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<p>Best Management Practices required for the identified risk level. The Stormwater Pollution Prevention Plan shall include a construction site monitoring program that identified requirements for dry weather visual observations of pollutants at all discharge locations and, as applicable, depending on the project risk level, sampling of site effluent and receiving waters. A qualified Stormwater Pollution Prevention Plan practitioner shall be responsible for implementing and all monitoring for the Best Management Practices as well as all inspection, maintenance and repair activities at the project site. If applicable, each project shall also implement and fully comply with the Industrial Storm Water Permit (Order No 97-03-DWO) and Kern County Municipal Stormwater Permit (Order No 5-01-120). All plans under these requirements shall be submitted to Kern County Public Works for review and approval.</p> <p>2. Any operator of a facility that meets the following requirements is not required to be covered by the Construction General Permit (State Water Regional Control Board Memorandum dated 5-18-2010) <u>for</u>:</p> <p class="list-item-l1">a. discharges of stormwater runoff from oil and gas exploration, production, processing or treatment operations or transmission facilities, including field activities or operations that may be considered construction activity;</p> <p class="list-item-l2">1. are not contaminated by contact with, or do not come into contact with, any overburden, raw material, intermediate products, finished product, byproduct or waste products;</p> <p class="list-item-l2">2. are only contaminated by or only come into contact with sediment; and</p> <p class="list-item-l2">3. pursuant to 40.CFR § 122.26(c)(1) (iii) that do not contribute to a violation of a water quality standard.</p> <p>Any change to this State Water Regional Control Board determination will require full compliance with National Pollutant Discharge Elimination System requirements.</p> <p>3. Any operator not subject to National Pollutant Discharge Elimination System stormwater permitting requirements shall implement Best Management Practices during construction and operation. All selected practices shall be shown on a drainage implementation plan and self-certified as complete by a licensed professional qualified in drainage and flood control issues. The plan shall be submitted to the Kern County Planning and Natural Resources Department. The following Best Management Practices shall be implemented and shown on the drainage implementation plan:</p> <p class="list-item-l1">a. Utilizing established facilities design and construction standards as applicable <u>to the specific activity</u> (e.g., American Society for the Testing and Materials (ASTM) American Petroleum Institute (API)).</p> <p class="list-item-l1">b. Implementing good housekeeping and maintenance practices:</p> <p class="list-item-l2">i. Preventing trash, waste materials and equipment from construction storm water.</p> <p class="list-item-l2">ii. Maintaining wellheads, compressors, tanks and pipelines in good condition without leaks or spills.</p> <p class="list-item-l2">iii. Designing and maintaining graded pads to not actively erode and discharge sediment</p> <p class="list-item-l2">iv. Maintaining vehicles in good working order</p> <p class="list-item-l2">v. Providing secondary containment for all aboveground storage tanks and maintaining such containment features in good operating condition</p> <p class="list-item-l1">c. Implementing spill prevention and response measures:</p> <p class="list-item-l2">i. Utilizing preventative operating practices such as tank level monitoring, safe chemical handling and conducting regular inspections.</p>		

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<ul style="list-style-type: none"> ii. Developing and maintaining a spill response plan iii. Conducting spill response training for employees and have a process to ensure contractors have the necessary training iv. Maintaining spill response equipment on site. d. Implementing material storage and management practices: <ul style="list-style-type: none"> i. Preventing unauthorized access ii. Utilizing “run-on” and “run-off” control berms and swales iii. Stabilizing exposed slopes through vegetation and other standard slope stability methods. <p>B. Oil and gas activities outside Tier 1 shall comply with all applicable state and federal stormwater management laws. For any oil and gas activity outside Tier I that is not subject to state or federal stormwater management laws, regulations or general permits, the Applicant shall prepare a drainage plan that complies with requirements to address runoff and the potential for impeding or redirecting 100-year flood flows. The drainage plan shall be prepared in accordance with the Kern County Grading Ordinance, Kern County Green Code, Development Standards and approved by the Kern County Department of Public Works, Floodplain Management Section. The drainage plan shall specify best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sedimentation or any other pollutants from moving offsite and into receiving waters. The requirements of the Plan shall be incorporated into design specifications. Recommended best management practices for the construction phase must be shown on a drainage plan, and shall include the following:</p> <ul style="list-style-type: none"> a. Erosion Control - <ul style="list-style-type: none"> 1. Scheduling of construction activities to avoid rain events. 2. Implementing runoff erosion control methods consistent with the drainage plan when vegetation has been removed. b. Sediment Control - <ul style="list-style-type: none"> 1. Secure stockpiling of soil. 2. Installation of a stabilized construction entrance/exit and stabilization of disturbed areas. c. Non-stormwater Control - <ul style="list-style-type: none"> 1. Fueling and maintenance of equipment and vehicles shall be managed so as to prevent contamination of runoff from the site. 2. Concrete handling techniques shall be consistent with the drainage plan and shall comply with Mitigation Measure 4.14-15 (m). d. Waste and Material Management - <ul style="list-style-type: none"> 1. Managing construction materials, consistent with the drainage plan and designating construction staging areas in or around the Project site. 2. Stockpiling and disposing of demolition debris, concrete, and soil in compliance with regulatory requirements and consistent with the drainage plan. 3. Prompt removal and disposal of litter. 4. Disposal of demolition debris, concrete and soil in compliance with regulatory requirements for solid waste. 5. Provide and maintain secondary containment to prevent or eliminate pollutants from moving offsite and into receiving waters in compliance with Mitigation Measure 4.8-3. 		

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<p>e. Post-Construction Stabilization -</p> <p>1. Ensuring the stabilization of all disturbed soils per revegetation or application of a soil binder.</p> <p>C. If construction activities will alter federal jurisdictional waters, project applicants shall comply with the federal Clean Water Act Section 404 and Section 401 permitting and certification requirements. If construction activities will alter state waters, project applicants shall comply with California Department of Fish and Wildlife Streambed Alteration requirements.</p> <p>MM 4.9-3 All drilling operations must either use a closed loop system to avoid discharges of drilling muds and fluids, or obtain coverage under the State Water Resources Control Board low threat discharge General Order (Waste Discharge Requirements General Order 2003-0003-DWQ), obtain individual Waste Discharge Requirements issued by the Central Valley Regional Water Quality Control Board for the unit, or obtain coverage under a general order issued by the Central Valley Regional Water Quality Control Board applicable to drilling ponds. Any surface ponds or sumps must be cleared of fluids and muds in accordance with the State Water Resources Control Board general order, applicable Water Discharge Requirements and Division of Oil Gas and Geothermal Resources California Energy Management Division regulations. Compliance with the State Water Resources Control Board or Central Valley Regional Water Quality Control Board low-threat discharge orders or Water Discharge Requirements, if closed loop systems are not used, and applicable laws, regulations and standards will reduce potential surface water quality impacts from contact with drilling muds or fluids during drilling and construction to less than significant levels.</p> <p>After consultation with and approval by the Regional Water Board with jurisdiction over injection and groundwater, applicant shall provide for a tracer or some other reasonable method to allow well stimulation fluids to be distinguished from other fluids or chemicals for well stimulation permits. This could consist of an added tracer using an inert constituent that could be used to identify the presence of well stimulation fluids. Alternatively, it could be an intrinsic tracer, or some naturally occurring component that makes the well stimulation fluids chemically unique. Potential geochemical changes in the subsurface during injection or migration shall be considered. Use of a tracer shall be required to be disclosed to the public under Section 1788 of the SB 4 regulations. The regulations specifically require that the applicant require the composition and disposition of all well stimulation treatment fluids other than water, including “any radiological components or tracers injected into the well as part of the well stimulation treatment, a description of the recovery method, if any, for those components or tracers, the recovery rate, and specific disposal information for the recovered components or tracers a radiological component or tracer injected” (Section 1788 (15)). For any well stimulation treatment activity, the applicant shall not conduct well stimulation treatment activity until the State Water Resources Control Board, in consultation with the Central Valley Regional Water Quality Control Board, has approved either a groundwater monitoring plan or exclusion from groundwater monitoring for a given well, consistent with the State Water Resources Control Board Model Criteria for Groundwater Monitoring in Areas of Oil and Gas Well Stimulation.</p> <p>MW 4.9-4 For any activity for which Chapter 19.98 applies, the Applicant shall not conduct any Class II injection activity regulated by the Underground Injection Control program, including enhanced oil recovery activities that discharge into any underground source of current or future beneficial use groundwater, including drinking water unless the aquifer has been exempted by the United States Environmental Protection Agency or injection has otherwise been authorized by the U.S. Environmental Protection Agency or by the California Geologic Energy Management Division in consultation and agreement by the State Water Resources Control Board, consistent with Public Resource Code 3131.</p> <p>MM 4.9-5 For any activity for which Chapter 19.98 applies, the Applicant shall not discharge produced water into any surface disposal facility unless the facility has received the Waste Discharge Requirements from the Central Valley Regional Water Quality Control Board, or the need for Water Discharge Requirements has been waived by the Central Valley Regional Water Quality Control Board. As required by the SB 4 regulations, well stimulation treatment fluids and produced fluids from wells that have been stimulated cannot be stored, discharged, or disposed into surface ponds or pits.</p>		

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		MM 4.9-6 For any oil and gas activity within a Special Flood Hazard Area, the Applicant shall ensure that all constructed facilities are elevated or floodproofed in compliance with the requirements and standards found in the Kern County Floodplain Management Code Ordinance and Chapters 19.50 and 19.70 of the Kern County Zoning Code.		
Impact 4.9-2 Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan	Potentially significant	Implement MM 4.9-1 through MM 4.9-6 , as described above, and the groundwater mitigation measures described in Section 4.17, Utilities and Service Systems.	Significant and unavoidable	All Tiers
Impact 4.9-3 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would: (i) result in a substantial erosion or siltation on- or offsite; (ii) substantially increase the rate of amount of surface runoff in a manner which would result in flooding on-or offsite; (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows	Less than significant	Implement MM 4.9-1 through MM 4.9-6 , as described above, and the groundwater mitigation measures described in Section 4.17, Utilities and Service Systems.	Less than significant	All Tiers
Impact 4.9-4 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would: (i) result in a substantial erosion or siltation on- or offsite; (ii) substantially increase the rate of amount of surface runoff in a manner which would result in flooding on-or offsite; (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of	Less than significant	Implement MM 4.9-1 through MM 4.9-6 , as described above, and the groundwater mitigation measures described in Section 4.17, Utilities and Service Systems.	Less than significant	All Tiers

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
polluted runoff; or (iv) impede or redirect flood flows				
Impact 4.9-5 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would: (i) result in a substantial erosion or siltation on- or offsite; (ii) substantially increase the rate of amount of surface runoff in a manner which would result in flooding on-or offsite; (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows	Less than significant	Implement MM 4.9-1 through MM 4.9-6 , as described above.	Less than significant	All Tiers
Impact 4.9-6 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality	Less than significant	Implement MM 4.9-1 through MM 4.9-6 , as described above, and the groundwater mitigation measures described in Section 4.17, Utilities and Service Systems.	Less than significant	All Tiers
Impact 4.9-7 Place Housing within a 100-year Flood Hazard Area as Mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or Other Flood Hazard Delineation Map	No impact	No mitigation measures are required since the Project does not include housing development.	No impact	All Tiers
Impact 4.9-8 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would: (i) result in a substantial erosion or siltation on- or offsite; (ii) substantially increase the rate of amount of surface runoff in a manner which would result in flooding on- or offsite; (iii) create or contribute	Potentially significant	Implement MM 4.9-1 through MM 4.9-6 , as described above.	Less than significant	All Tiers

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows				
Impact 4.9-9 Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Flooding, Including Flooding as a Result of the Failure of a Levee or Dam	Potentially significant	Implement MM 4.9-1 through MM 4.9-6 , as described above, and the groundwater mitigation measures described in Section 4.17, Utilities and Service Systems.	Less than significant	All Tiers
Impact 4.9-10 In flood hazard, tsunami, seiche zones, risk release of pollutants due to project inundation	No impact	No mitigation measures are required.	No impact	All Tiers
Impact 4.9-11 Contribute to Cumulative Hydrology and Water Quality Impacts	Potentially significant	Implement MM 4.9-1 through MM 4.9-6 , as described above, and MM 4.17-3, 4.17-4, and 4.17-5 as described in Section 4.17, Utilities and Service Systems.	Significant and unavoidable	All Tiers
Noise				
Impact 4.12-1 Generation of a Substantial Temporary or Permanent Increase in Ambient Noise Levels in the Vicinity of the Project in Excess of Standards Established in the Local General Plan or Noise Ordinance, or Applicable Standards of Other Agencies	Potentially significant	MM 4.12-1 Construction The Site Plan Application for an Oil and Gas Conformity Review shall include a Site Vicinity Figure showing the location of any sensitive receptor(s) within 4,000 feet of the construction site (potential impact area) for the proposed new well or other ancillary facility or equipment (excluding pipelines). For any permit Applicant intending to process an Exploratory Well Permit with CalGEM, the Site Vicinity Figure shall show the locations of any sensitive receptors within 8,000 feet of the construction site. A sensitive receptor is defined as a single or multi-family dwelling unit, place of public assembly (a legally permitted place where 100 or more people gather together in a building or structure for the purpose of amusement, entertainment, or retail sales), church, institution, school, or hospital. The site plan shall comply with the following details: 1. Determination of Distance <ul style="list-style-type: none">a. If there are no sensitive receptors within this potential impact area, then no construction mitigation measures for noise shall be required and the statement shall be placed as a note on the site plan.b. The well site and nearest property line of a sensitive receptor shall be shown on the site plan using both feet and coordinates. If there is a neighborhood of sensitive receptors then the site plan shall identify the nearest group. If there are sensitive receptors within the potential impact area, then additional information must be provided showing the distance in feet and coordinates from the closest edge of the well pad to the property line of the nearest sensitive receptor.c. Table 1, below, shall be used to identify the mitigation trigger distance for the activity and a note placed on the site plan identifying the specific listed construction activity and mitigation trigger distance.	Significant and Unavoidable	All Tiers

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier												
		<div><div>d.</div><div>If the nearest sensitive receptor property line is closer than the distance on Table 1, Construction Noise Mitigation Trigger Distance, then noise reduction measures to reduce impacts to the following Noise Standards shall be implemented:</div><div>Noise Standards</div><div><div><div><div></div></div><div>For locations where the ambient level is below 65 dB, noise levels from construction activities may not increase the existing ambient level at the property line of the sensitive receptor by more than 5dB and may not exceed 65 dB at the property line of the sensitive receptor;</div><div></div><div>For locations where the ambient level is at or in excess of 65 dB, noise levels from construction activities may not increase the existing ambient level at the property line of the sensitive receptor by more than 1 dB.</div></div></div><div><div>Table 1: Construction Noise Mitigation Trigger Distances</div><table><tr><th>Activity</th><th>Mitigation Trigger Distance (feet) For distance to closest sensitive receptor</th></tr><tr><td>Drilling (Well Advancement)</td><td>3,900</td></tr><tr><td>Drilling (Pull Out of Well/Borehole)</td><td>2,350</td></tr><tr><td>Large-Scale Exploratory Drilling^(a)</td><td>7,900</td></tr><tr><td>Well Workover</td><td>2,355</td></tr><tr><td>Hydraulic Fracturing</td><td>2,965</td></tr></table><div>Note: ^(a) Kenai Drill Rig #7</div></div><div><div>e.</div><div>If a sensitive receptor is located within the noise mitigation trigger distances identified in Table 1, the activity location must either be relocated to achieve the distance as a setback, or an Acoustic Noise Reduction Report with mandatory noise reduction measures shall be prepared and submitted to show how to achieve the Noise Standard. The mitigation trigger distances and ambient noise levels are measured from the legal parcel property line facing the well pad site of the closest sensitive receptor.</div></div><div><div>2.</div><div>Acoustic Noise Reduction Report</div><div><div>a.</div><div>An Acoustic Noise Reduction Report completed by a qualified professional shall be provided in conjunction with the application if the identified mitigation trigger distance will not be met. The report and submitted site vicinity map shall include all dimensions and detailed notes, based on the Acoustic Noise Reduction Report detailed in this measure.</div></div><div><div>b.</div><div>Clearly marked distances in feet and with coordinates from the construction location on the well site to the nearest sensitive receptors, <u>including</u> both <u>the</u> exterior wall of the receptor and the property line within the potential impact area.</div></div><div><div>c.</div><div>Notes showing the average day-night level <u>over a 24-hour period</u> (DNL or Ldn) of ambient outdoor noise level at the proposed well location and at the property line of the nearest identified sensitive receptors that face the drill site over a 24-hour period.</div></div><div><div>d.</div><div>Specific details from the Acoustic Noise Reduction Report specifying the level of project activity noise at the property line of the sensitive receptor allowed under the Noise Standard and the projected level of noise from the Project activity before implementation of noise reduction measures and after implementation of noise reduction measures.</div></div><div><div>e.</div><div>The report shall identify and include the specific noise reduction method or methods that will be implemented and shall not include options for compliance. Any changes to the selected method or methods of compliance after approval will require submission of an amended Acoustic Noise Reduction Report reflecting the new selection.</div></div></div></div>	Activity	Mitigation Trigger Distance (feet) For distance to closest sensitive receptor	Drilling (Well Advancement)	3,900	Drilling (Pull Out of Well/Borehole)	2,350	Large-Scale Exploratory Drilling ^(a)	7,900	Well Workover	2,355	Hydraulic Fracturing	2,965		
Activity	Mitigation Trigger Distance (feet) For distance to closest sensitive receptor															
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Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<ol style="list-style-type: none"> 1. Placement of a temporary sound attenuation wall(s) on property controlled by the applicant or with written permission from the property owner in compliance with Chapter 19.98. 2. Construction of a temporary berm on property controlled by the applicant or with written permission from the property owner in compliance with Chapter 19.98. 3. Specific orientation of the drilling equipment on the well site and modification of equipment to reduce noise impacts. 4. Implementation of other detailed sound reduction technologies or practices with evidence from the qualified professional of the reductions achieved. 5. Written confirmation from the occupants of the sensitive receptor(s) of their voluntary, temporary relocation or business restrictions during a defined construction period. <p>3. Monitoring</p> <p>For the duration of the construction the following measurements shall be submitted to the Kern County Planning and Natural Resources Department at the required intervals. The measurements shall show achievement of the stated average day-night noise level stated on the Site Plan. If the measurement does not show the level is achieved, additional measures must be proposed and installed to prevent a stop work notice. Failure to submit within one business day after taking the required measurements will result in a stop work notice.</p> <ol style="list-style-type: none"> a. 24 hours after completion of all noise attenuation measures and commencement of drilling or rework activities, the applicant shall take a measurement <i>at-of</i> the ambient level at the property line of the identified, nearest sensitive receptor. b. Every 14 days after commencement of activities, the applicant shall take a measurement at the ambient level at the property line of the identified, nearest sensitive receptor until completion of construction activities. c. All installed noise attenuation measures shall be maintained throughout all construction phase activities. <p>MM 4.12-2 Operation</p> <p>1. Mandatory Setbacks</p> <p>The following are distances for a setback that can only be reduced by the processing and approval of a Conditional Use Permit with further environmental review under CEQA.</p> <ol style="list-style-type: none"> a. New oil and gas wells shall be a minimum of two hundred and ten (210 feet) from the closest sensitive receptor for the following uses: single or multi-family dwelling unit, place of public assembly (a legally permitted place where 100 or more people gather together in a building, or structure, for the purpose of amusement, entertainment, or retail sales), church, institution or hospital. b. New oil and gas wells shall be a minimum of three hundred (300) feet <i>of from</i> the legal parcel property line that contains a permitted public or private school. A single family or multi-family dwelling unit that may have home schooling activities shall use the single family dwelling unit distance. c. Geophysical testing methods using vibroseis vehicles to generate sound waves shall be a minimum of one hundred and fifty (150) feet from the closest occupied building, water well, sewer system, and septic tank. Geophysical testing methods using shotholes that employ explosives shall be a minimum of three hundred (300) feet from the closest occupied building, water well, sewer system, and septic tank and shall be in full compliance with all laws governing explosives. <p>2. Site Vicinity Figure</p> <p>The Site Plan Application for an Oil and Gas Conformity Review shall include a Site Vicinity Figure showing the location of any sensitive receptor(s) within 4,000 feet of the construction site (potential impact area) for the proposed new well or other ancillary facility or equipment (excluding pipelines). A sensitive receptor is defined as a single or multi-family dwelling unit, place of public assembly (a legally permitted place where 100 or more people gather together in a building or structure for the purpose of amusement, entertainment, or retail sales), church, institution, school, or hospital.</p>		

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<p>The site plan shall comply with the following details:</p> <p>3. Determination of Distance</p> <p>a. If there are no sensitive receptors within this potential impact area, then no permanent operational noise mitigation measures shall be required and the statement shall be placed as a note on the site plan.</p> <p>b. If the well site is between two hundred and ten (210) feet and six hundred and fifty (650) feet <u>from the closest edge</u> of the well pad and nearest property line of a sensitive receptor other than a school, then it shall be shown on the site plan. If the well site is between three hundred (300) feet and six hundred and fifty (650) feet of the property line of a legally permitted public or private school, then it shall be shown on the site plan. If there is a neighborhood of sensitive receptors than the site plan shall identify the nearest group.</p> <p>c. Location of a well between two hundred and ten (210) feet <u>from all sensitive receptors (with the exception of schools) or three hundred (300) feet (from schools)</u> and six hundred and fifty (650) feet <u>from the closest edge</u> of the well pad and nearest property line of a sensitive receptor shall require either details of the use of electric power for the well production which will mitigate the noise or the submittal of an Acoustic Noise Reduction Report if diesel power is used for the well production.</p> <p>4. Acoustic Noise Reduction Report</p> <p>a. An Acoustic Noise Reduction Report completed by a qualified professional shall be provided in conjunction with the application for any well sited between two hundred and ten (210) feet and six hundred and fifty feet (650) feet of the well pad and nearest property line of a sensitive receptor that will use diesel power for the well production. The report and submitted site vicinity map shall include all dimensions and detailed notes, based on the Acoustic Noise Reduction Report detailed in this mitigation measure. The report shall be based on the following noise standard'</p> <p>b. Noise Standards</p> <ul style="list-style-type: none">For locations where the ambient level is below 65 dB, noise levels from operation of the well may not increase the existing ambient level at the property line of the sensitive receptor by more than 5dB and may not exceed 65 dB at the property line of the sensitive receptor.For locations where the ambient level is at or in excess of 65 dB, noise levels from operation of the well may not increase the existing ambient level at the property line of the sensitive receptor by more than 1 dB. <p>c. The site plan shall include notes showing the average day-night level <u>over a 24-hour period</u> (DNL or L_{dn}) of ambient outdoor noise level at the proposed well location and at the property line of the nearest identified sensitive receptors that faces the drill site over a 24-hour period.</p> <p>d. Specific details from the Acoustic Noise Reduction Report specifying the level of operational noise at the property line of the sensitive receptor allowed under the Noise Standard and the projected level of noise from the operational noise before implementation of noise reduction measures and after implementation of noise reduction measures.</p> <p>e. If a permanent wall or solid barrier type material is utilized as a noise reduction measure, the holder of the Oil and Gas Conformity permit is responsible for obtaining any and all building permits required, maintenance and graffiti removal for the life of the oil well or group of wells being mitigated. No landscaping is required for the wall. The wall shall be removed when the well is abandoned and plugged. Requests to delete these requirements will require the processing and approval of a Conditional Use Permit.</p>		

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.12-2 Exposure of Persons to, or Generate, Excessive Groundborne Vibration or Groundborne Noise Levels	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.12-3 For a Project Located Within the Vicinity of a Private Airstrip or an Airport Land Use Plan or, Where Such a Plan Has Not Been Adopted, Within Two Miles of a Public Airport or Public Use Airport, Would the Project Expose People Residing or Working in the Project Area to Excessive Noise Levels	Potentially significant	Implement MM 4.12-1 and MM 4.12-2 , as described above.	Significant and unavoidable	All Tiers
Impact 4.12-4 Cumulative Impact on Noise Receptors	Potentially significant	Implement MM 4.12-1 and MM 4.12-2 , as described above.	Significant and unavoidable	All Tiers
Utilities and Service Systems				
Impact 4.17-1 Exceed Wastewater Treatment Requirements of the Applicable Regional Water Quality Control Board	Less than significant	Implement stormwater mitigation measures, as described in Section 4.9, Hydrology and Water Quality.	Less than significant	All Tiers
Impact 4.17-2 Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects	Potentially significant	MM 4.17-1 Prior to the issuance of building permits for an operations and maintenance building, the method of sewage disposal shall be as required and approved by the Kern County Public Health Services Department. Compliance with this requirement will necessitate that the Project proponent obtain the necessary approvals for the design of the septic system from the Kern County Engineering, Surveying and Permit Services Department. The septic system disposal field shall be located a minimum of 100 feet from a classified stream or 25 feet from a non-classified stream and shall not be located where it would impact State wetlands or special-status plant species.	Less than significant	All Tiers
Impact 4.17-3 Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects	Less than significant	Implement stormwater mitigation measures, as described in Section 4.9, Hydrology and Water Quality.	Less than significant	All Tiers

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.17-4 Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years	Potentially significant	MM 4.17-3 All Oil and Gas Conformity Reviews and Minor Activity Reviews shall provide information on any groundwater or reclaimed water will be used. Unmetered water wells cannot be used as a source of groundwater for the permit activity. Groundwater may only be used in a permitted activity from a water well equipped with a water meter. The Planning and Natural Resources Department shall compile the water use information in a report that shall be posted on the Kern County Planning and Natural Resources website for public use by December 31 of each calendar year. A copy shall be sent to all Groundwater Sustainability Agencies and the Kern County Water Agency after being posted on the website. The information submitted on the permit shall include the following data: A. The source and estimated amount of any groundwater being used in the permit activity. B. Confirmation that any water well used in permit activity is metered C. The source and estimated amount of any reclaimed water used in the permit activity. MM 4.17-4 Public Notices for all Conditional Use Permits for oil and gas activities shall be sent to the appropriate Water Districts, Groundwater Authorities, and the Kern County Water Agency for review and comment on water availability and usage.	Significant and unavoidable	All Tiers
Impact 4.17-5 Result in a Determination by the Wastewater Treatment Provider which Serves or May Serve the Project that it has Adequate Capacity to Serve the Project’s Projected Demand in Addition to the Provider’s Existing Commitments	Less than significant	Implement MM 4.17-1 , as described above.	Less than significant	All Tiers
Impact 4.17-6 Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals	Potentially significant	Implement the following: MM 4.17-2 During construction activities for Project facilities, the Applicant shall not store construction waste onsite for longer than the duration of the construction activity, or transport any waste to any unpermitted facilities. The Applicant shall also reduce construction waste transported to landfills by recycling solid waste construction materials, such as taking materials to recycling and reuse locations listed in the brochure on recycling construction and demolition materials available on the Kern County Public Works Department website.	Less than significant	All Tiers
Impact 4.17-7 Comply with federal, State, and local management and reduction statutes and regulations related to solid waste	Potentially significant	Implement MM 4.17-2 , as described above.	Less than significant	All Tiers

Table 7-1: 2020 SREIR Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.17-8 Cumulative Impacts on Utilities and Service Systems	Potentially significant	Implement MM 4.17-1 and MM 4.17-2 , as described above. MM 4.17-5 The Applicant shall pay a mitigation fee on each well of \$250 for an Oil and Gas Conformity Review and \$50 for each well in a Minor Activity Review. These funds shall be deposited into a Disadvantaged Community Drinking Water Grant Fund to be implemented by Kern County Public Health, which shall administer the selection and awarding of grants. Grants shall be available only for projects in disadvantaged communities in the Valley portion of Kern County, and may only be used for the design, permitting, and construction of physical improvements to water wells or water systems serving the identified Disadvantaged Community. The Disadvantaged Community may be within an incorporated city limits.	Significant and unavoidable with respect to water supply. Less than significant with respect to other public utilities, including municipal wastewater treatment, stormwater management, or landfills with mitigation	All Tiers

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Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Aesthetics				
Impact 4.1-1 Have a Substantial Adverse Effect on a Scenic Vista	Less than significant	No mitigation measures are proposed.	Less than significant	All Tiers
Impact 4.1-2 Substantially Damage Scenic Resources, Including, but Not limited to, Trees, Rock Outcroppings, and Historic Buildings within a State Scenic Highway	Less than significant	No mitigation measures are proposed.	Less than significant	All Tiers
Impact 4.1-3 Substantially Degrade the Existing Visual Character or Quality of the Site and its Surroundings	Potentially Significant	<p>MM 4.1-1 The Applicant shall use existing public access easements or county maintained roads to access oil production areas. Existing private roads may only be used with the written permission of the property owner or private easement holder and written permission is only required if the surface owner is different from the mineral owner. The property owner’s signature on the site plan statement will be considered permission for the use of all private roads shown on the site plan.</p> <p>New roads shall only be created if no existing public access easement exists for access to the oil production area or permission for legal use of an existing private access easement or private driveway/road cannot be obtained. Evidence that legal permission to use a private access or private driveway/road cannot be obtained shall be through two attempts by certified letter to the easement owner with two week reply times for each attempt. No response shall constitute lack of agreement to use the private access easement or private driveway/road.</p> <p>Permission for use of a private access instead of the signature on the site plan shall be from the property owner with a copy of the private easement or, in the case of a private driveway/road a highlighted plot plan showing the driveway/road being approved for use. Any new road shall not exceed 40 feet in graded width.</p> <p>MM 4.1-2 All derricks, boilers, and other drilling equipment used to drill, repair, clean out, deepen or redrill any well with oil, gas, or other hydrocarbon shall be removed from the drill site within 90 days after completion of production tests or after abandonment of any well. Earthen sumps used in drilling shall be filled within 90 days after any well has been placed in production (unless such sumps are to be used within six months for the drilling of another well), and any sump used in productions shall be filled after its abandonment and restored to a uniform grade within ninety days.</p> <p>MM 4.1-3 Sumps and ponds shall be permitted only to the extent authorized by the Central Valley Regional Water Quality Control Board (via waiver, Waste Discharge Requirements, or other form of authorized written documentation) and shall comply with all applicable legal requirements and mitigation measures for sumps serving as storage, percolation or evaporation ponds for produced water.</p> <p>MM 4.1-4 Except where located within agricultural land, new oil or gas tanks located within 200 feet of any sensitive receptor shall be partially screened from public view by shrubs, trees or solid screen fencing. Similarly, new pump sites (including multiple well pump sites) within 500 feet of any dwelling must be surrounded by a fence, at least 6 feet in height, constructed of dark-colored chain link with wood or metal slates, dark green or brown fabric material or solid wall. The height of all new pumping units shall not exceed 80 feet, and shall be painted in accordance with the Kern County Zoning Ordinance.</p> <p>MM 4.1-5 Project signage is limited to directional, warning, safety, security and identification signs in connection with oil, gas, or other hydrocarbon drilling and development operations in accordance with Chapter 19.84.135 of the Kern County Zoning Ordinance.</p>	Significant and unavoidable	All Tiers

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.1-4 Create a New Source of Substantial Light or Glare that Would Adversely Affect Day or Nighttime Views in the Area	Potentially significant	MM 4.1-6 All new lighting, including permanent nighttime lighting, safety, security, and operational lightening shall comply with the standards in Kern County Zoning Chapter 19.81 - Outdoor Lighting “Dark Sky Ordinance.”	Significant and unavoidable	All Tiers
Impact 4.1-5 Contribute to Cumulative Aesthetic Impacts	Cumulatively considerable	Implement MM 4.1.1 through 4.1.6 , as described above. No additional feasible mitigation measures exist to avoid or reduce significant adverse cumulative impacts to aesthetics to a less than significant level.	Significant and unavoidable	All Tiers
Biological Resources				
Impact 4.4-1 Have a Substantial Adverse Effect, either Directly or through Habitat Modifications, on any Species Identified as a Candidate, Sensitive, or Special Status Species in Local or Regional Plans, Policies, or Regulations or by the California Department of Fish and Wildlife or the United States Fish and Wildlife Service	Potentially significant	MM 4.4-1 <p>The applicant shall use a qualified biologist for all work on reports submitted for any application for project permit. The qualified biologist must have a Bachelor of Science Degree or Bachelor of Arts Degree in biology or related environmental science, have demonstrated familiarity with the natural history, habitat affinities and identification of Covered Species of the San Joaquin Valley and have conducted work in California for at least one (1) year of field level reconnaissance survey work in the San Joaquin Valley. The resume of the biologist preparing any report submitted for permits shall be included in the report. Lack of these specific qualifications will result in immediate rejection of the report without further review.</p> <p>A qualified biologist shall conduct a biological reconnaissance survey in potential special-status species habitat to advise the project proponent of potential project impacts, potential surveying needs, and advise on the need for focused special status surveys. Early consultation with United States Fish and Wildlife Service and California Department of Fish and Wildlife will also inform project proponents of additional recommendations. Based on the information gathered from the biological reconnaissance survey and any informal consultation with United States Fish and Wildlife Service and California Department of Fish and Wildlife, focused/protocol surveys shall be conducted by a qualified biologist consistent with protocol study timelines in advance of submittal of the permit application to determine the presence/absence of sensitive species protected by state and federal Endangered Species Acts and potential project impacts to those species. No ground disturbance activities can occur on any well site without an approved Oil and Gas permit. The survey shall be conducted in accordance with the most current standard protocol of the United States Fish and Wildlife Service and California Department of Fish and Wildlife. The purpose of focused/protocol surveys is to confirm the presence or absence of any species listed as threatened or endangered under the federal Endangered Species Act. threatened or endangered under the California Endangered Species Act, rare or endangered in the California Native Plant Protection Act, or designated as fully-protected in the California Fish and Game Code (collectively, "Protected Species"), and to confirm the presence or absence of any other species considered "sensitive" under California Environmental Quality Act ("Sensitive Species"), and to identify and implement avoidance and minimization measures for such species. The surveys shall be conducted in accordance with all currently-applicable presence and absence survey and/or species protocols established by the United States Fish and Wildlife Service and the California Department of Fish and Wildlife ("Species Protocols"). In the absence of any approved protocols, the survey shall extend for a minimum of 250 feet from all areas where any ground disturbance activities would occur, provided that permission to access has been obtained. As an alternative to individual pre-disturbance surveys for each application, and after consultation with and concurrence by the California Department of Fish and Wildlife and the United States Fish and Wildlife Service, multiple parcels or areas of oil and gas production lands (including lands which may have multiple surface or mineral ownership) may be consolidated for the purpose of more efficiently managing pre-disturbance surveys and determinations regarding the absence of protected species in areas of proposed new ground disturbance activities. A biological monitor with the same qualifications as a qualified biologist shall be present during ground-disturbing activities in project locations that have special-status species habitat or are adjacent to potential special-status species habitat. Within 30 days before any ground-disturbing activities in special-status species habitat, the qualified biologist shall conduct a pre-disturbance survey to record existing conditions of the site, determine if conditions have changed since the reconnaissance or focused/protocol surveys were conducted, and to determine where sensitive species avoidance buffers will be established</p>	Less than significant	All Tiers

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier																										
		<div><div><div>MM 4.4-2</div><div>No incidental take of any species listed as threatened or endangered under the federal Endangered Species Act, threatened or endangered under the California Endangered Species Act, rare or endangered in the California Native Plant Protection Act, or designated as fully-protected in the California Fish and Game Code (Protected Species) may occur unless the incidental take is authorized by applicable state and federal wildlife agencies in the form of a permit or other written authorization, an approved state or federal conservation plan, or in accordance with an approved regional plan such as the Draft Valley Floor Habitat Conservation Plan and/or Natural Community Conservation Plan.</div></div><div><div>MM 4.4-3</div><div>Protective buffers shall be used, where effective in the opinion of the qualified biologist, to avoid any unauthorized incidental take of Protected Species, and to minimize any incidental take of Sensitive Species, by separating the planned disturbance area from any locations where the qualified biologist has detected the presence of Protected Species or Sensitive Species. Protective buffers shall be delineated using brightly colored stakes and/or flagging or similar materials and remain until construction activities are complete, at which time of completion the buffers must be removed. Protective buffers shall be established around active dens and/or burrows of special-status animal species, or populations of special-status plant species to avoid unauthorized take of protected species as listed in the table below. The protective buffer distance shall be increased if required to avoid unauthorized incidental take of any Protected Species as determined by a qualified biologist. Protective buffer distances and other avoidance measures that may be implemented to avoid impacts to Protected Species or Sensitive Species must be consistent with the United States Fish and Wildlife Service and/or the California Department of Fish and Wildlife <u>requirements</u>, and shall be implemented and overseen by the qualified biologist.</div></div><div><div>Disturbance Buffers for Sensitive Resources</div><table><tr><th>Sensitive Resource</th><th>Buffer Zone from Disturbance (feet)</th></tr><tr><td>Potential San Joaquin kit fox den</td><td>50</td></tr><tr><td>Known San Joaquin kit fox den</td><td>100</td></tr><tr><td>Natal San Joaquin kit fox den</td><td>500</td></tr><tr><td>Atypical San Joaquin kit fox den</td><td>50</td></tr><tr><td>Rodent burrows</td><td>50</td></tr><tr><td>Listed bird species active nests</td><td>0.5 mile</td></tr><tr><td>Burrowing owl burrow (breeding and non-breeding season)</td><td>Pursuant to California Department of Fish & Wildlife guideline (see Table 4.4-85)</td></tr><tr><td>San Joaquin coachwhip, all silvery legless lizard <u>species</u>, coast horned lizard</td><td>30</td></tr><tr><td>American badger:</td><td></td></tr><tr><td>Non-maternity dens</td><td>50</td></tr><tr><td>Maternity dens</td><td>200</td></tr><tr><td>Special-status plants</td><td>50</td></tr></table></div></div>	Sensitive Resource	Buffer Zone from Disturbance (feet)	Potential San Joaquin kit fox den	50	Known San Joaquin kit fox den	100	Natal San Joaquin kit fox den	500	Atypical San Joaquin kit fox den	50	Rodent burrows	50	Listed bird species active nests	0.5 mile	Burrowing owl burrow (breeding and non-breeding season)	Pursuant to California Department of Fish & Wildlife guideline (see Table 4.4-85)	San Joaquin coachwhip, all silvery legless lizard <u>species</u> , coast horned lizard	30	American badger:		Non-maternity dens	50	Maternity dens	200	Special-status plants	50		
Sensitive Resource	Buffer Zone from Disturbance (feet)																													
Potential San Joaquin kit fox den	50																													
Known San Joaquin kit fox den	100																													
Natal San Joaquin kit fox den	500																													
Atypical San Joaquin kit fox den	50																													
Rodent burrows	50																													
Listed bird species active nests	0.5 mile																													
Burrowing owl burrow (breeding and non-breeding season)	Pursuant to California Department of Fish & Wildlife guideline (see Table 4.4-85)																													
San Joaquin coachwhip, all silvery legless lizard <u>species</u> , coast horned lizard	30																													
American badger:																														
Non-maternity dens	50																													
Maternity dens	200																													
Special-status plants	50																													

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier																																	
		<div><div>MM 4.4-4</div><div>Occupied burrowing owl burrows shall not be disturbed during the species nesting season (February 1 through August 31). The following distances shall be maintained between all disturbance areas and burrowing owl nesting sites (Table 4.4-85).</div><div><div>Table 4.4-85 Setback Distances for Burrowing Owl Nesting Sites by Level of Proposed Project Impacts</div><table><tr><th colspan="3">Location</th></tr><tr><td>Nesting sites</td><td>Nesting sites</td><td>Nesting sites</td></tr><tr><th colspan="3">Time of Year</th></tr><tr><th>April 1–Aug 15</th><th>Aug 16–Oct 15</th><th>Oct 16–Mar 31</th></tr><tr><th colspan="3">Project Impact Level</th></tr><tr><th colspan="3">Low</th></tr><tr><td>656 feet (200 meters)</td><td>656 feet (200 meters)</td><td>164 feet (50 meters)</td></tr><tr><th colspan="3">Medium</th></tr><tr><td>1,640 feet (500 meters)</td><td>656 feet (200 meters)</td><td>328 feet (100 meters)</td></tr><tr><th colspan="3">High</th></tr><tr><td>1,640 feet (500 meters)</td><td>1,640 feet (500 meters)</td><td>1,640 feet (500 meters)</td></tr></table></div><div><p>Burrowing owls present in proposed disturbance areas or within 500 feet or as specified under an approved Habitat Conservation Plan (as identified during pre-disturbance surveys) outside of the breeding season (between September 1 and January 31) may be moved away from the disturbance area using passive relocation techniques approved by the California Department of Fish and Wildlife. Passive relocation techniques in the California Department of Fish and Wildlife <i>Staff Report on Burrowing Owl Mitigation Guidelines</i> (California Department of Fish and Game 2012) include installing one-way doors in burrow entrances for 48 hours, to ensure the owl(s) have left the burrow, daily monitoring during the passive relocation period, and collapsing existing burrows to prevent reoccupation. A minimum of one or more weeks will be required to relocate the owl(s) and allow for acclimatization to alternate off-site burrows. Prior to burrow exclusion or eviction, a burrowing owl management plan shall be prepared and approved by the California Department of Fish and Wildlife. Destruction of burrows shall occur only pursuant to a management plan for the species approved by the California Department of Fish and Wildlife; burrow excavation shall be conducted by hand whenever possible.</p><p>As an alternative to passive relocation, occupied burrows identified off-site within 500 feet of construction activities may be buffered with hay bales, fencing (e.g. sheltering in place), or as directed by the qualified biologist and the California Department of Fish and Wildlife, to avoid disturbance of burrows.</p></div><div><div>MM 4. 4-5</div><div>The qualified biologist surveys shall determine whether active bat maternity roosts are located in or within 250 feet of any disturbance area. All active bat maternity roosts shall be avoided during breeding periods, including postponing disturbance activities. If an active Sensitive or Protected Species bat maternity roost location is proposed to be disturbed, the qualified biologist shall consult with, the United States Fish and Wildlife Service and California Department of Fish and Wildlife to identify any additional minimalization measures which the qualified biologist determines with the wildlife agencies can actually be implemented based on field conditions. All such measures must be implemented for project activities.</div></div></div>	Location			Nesting sites	Nesting sites	Nesting sites	Time of Year			April 1–Aug 15	Aug 16–Oct 15	Oct 16–Mar 31	Project Impact Level			Low			656 feet (200 meters)	656 feet (200 meters)	164 feet (50 meters)	Medium			1,640 feet (500 meters)	656 feet (200 meters)	328 feet (100 meters)	High			1,640 feet (500 meters)	1,640 feet (500 meters)	1,640 feet (500 meters)		
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Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<p>MM 4.4-6 Any potential San Joaquin kit fox dens (as defined in United States Fish and Wildlife Service 2011a) detected during reconnaissance or focused/protocol surveys shall be reevaluated by the qualified biologist for species activity no more than 30 days prior to the commencement of ground disturbance in the required pre-construction survey. Potential kit fox dens shall be marked and a 50-foot avoidance buffer shall be delineated using brightly colored stakes and flagging or similar materials to prevent inadvertent damage to the potential den. If the qualified biologist determines that an unoccupied potential den cannot be avoided, the den may be hand excavated in accordance with the United States Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance (United States Fish and Wildlife Service 2011). If species activity is detected, the location shall be identified as a "known" kit fox den in accordance with the U.S. Fish and Wildlife Service species guidelines (United States Fish and Wildlife Service 2011). A minimum 100-foot buffer from any disturbance area shall be maintained for known dens and a minimum 500-foot buffer from any disturbance area shall be maintained for natal dens. No excavation of a known or natal den shall occur without prior authorization from the United States Fish and Wildlife Service and the California Department of Fish and Wildlife. For activities occurring on land covered under an approved federal and/or State incidental take authorization, the requirements set forth in those documents shall be implemented. Other standard measures to protect San Joaquin kit fox, including capping pipes, covering trenches, adding exit ramps to excavated areas, shall be implemented in accordance with MM 4.4-15.</p> <p>MM 4.4-7 Occupied American badger dens detected during pre-disturbance surveys shall be flagged and ground-disturbing activities avoided within 50 feet of the den. Maternity dens shall be avoided and a minimum 200-foot buffer from disturbance shall be maintained during pup-rearing season (February 15 through July 1). Maternity dens must be avoided to the maximum extent feasible in the opinion of the qualified biologist. If an active maternity den is proposed to be disturbed, the qualified biologist, shall consult with the California Department of Fish and Wildlife to identify any appropriate additional minimization measures which the qualified biologist determines, with the wildlife agencies, can actually be implemented based on field conditions. All such measures must be implemented for project activities.</p> <p>MM 4.4-8 Pre-disturbance surveys for all sites located above 2,000 feet in elevation, or within 200 feet down gradient from the 2,000-foot elevation contour line, shall specifically survey for any golden eagle nests located within 2 miles of the site. If golden eagle nests are detected by the surveys, the qualified biologist shall conduct a nest-specific viewshed analysis. No disturbance may occur within 0.25 mile, or within 0.5 mile of the viewshed of an active golden eagle nest unless otherwise authorized by State and federal wildlife agencies. The United States Fish and Wildlife Service and California Department of Fish and Wildlife must be notified prior to the commencement of any disturbance activities within 1 mile of an active golden eagle nest to avoid golden eagle take.</p> <p>MM. 4.4-9 All sites located above 2,000 feet in elevation, or within 200 feet down gradient from the 2,000-foot elevation contour line, shall implement the following measures to avoid and minimize potential adverse impacts to the California condor:</p> <ul style="list-style-type: none">a. The site shall, at all times, be maintained to avoid any trash, debris, food sources and microtrash, such as bottle caps, that could be ingested by or attract California condor. Trash shall be disposed in animal-proof containers as required in MM 4.4-19.b. The Worker Environmental Awareness Program described in MM 4.4-18 shall include information about microtrash and potential effects to California condor, and shall prohibit the disposal of trash and microtrash on the site of oil and gas activities.c. If a condor is observed in a proposed construction site, all disturbance activities must immediately cease within 500 feet of the condor until the animal has moved from the site. If condor occurrence persists, the United States Fish and Wildlife Service and the California Department of Fish and Wildlife must be contacted to identify appropriate avoidance measures and those measures must be implemented by the qualified biologist used by the applicant prior to initiating or resuming any disturbance activity.d. All condor observations shall be reported within 24 hours to the United States Fish and Wildlife Service and the California Department of Fish and Wildlife.e. All tanks, liquid storage facilities, and any open area containing water or other liquid materials, including drilling sumps, must be covered or otherwise shielded in a manner that prevents condor intrusion and potential entrapment.		

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<p>f. No overhead transmission lines may be used at the site without the prior approval of the United States Fish and Wildlife Service and the California Department of Fish and Wildlife.</p> <p>MM 4.4-10 Pre-disturbance surveys for active bird nests must be conducted no more than 10 days prior to the commencement of disturbance. Surveys shall follow United States Fish and Wildlife and California Department of Fish and Wildlife guidance and/or protocols, as applicable. If no active nests or nesting birds are identified, then Project construction activities may proceed and no further mitigation measures for nesting birds are required. If active nest(s) are identified, the active nest(s) should be continuously surveyed for the first 24 hours after detection, to establish a behavioral baseline prior to any construction-related activities.</p> <p>Once construction commences, all nests shall be continuously monitored to detect any behavioral changes as a result of the Project (i.e., nest avoidance or abandonment). If behavioral changes are observed, the work causing that change shall cease until the applicant qualified biologist consults with the California Department of Fish and Wildlife and the United States Fish and Wildlife and the qualified biologist used by the applicant implements the recommended measures. During such times as the qualified biological monitor is not onsite while construction workers are onsite, a minimum nondisturbance buffer of 250 feet shall be established around active nests and a 500-foot no-disturbance buffer around the nests of raptors until the breeding season has ended, or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival, and any adult birds are no longer occupying the nest. Deviations from these no disturbance buffers may be implemented if the qualified biologist concludes that work within the buffer area would not cause nest avoidance or abandonment (e.g., when the disturbance area would be concealed from a nest site by topography) provided that notification of this determination of a deviation in the no-disturbance buffer is provided by the qualified biologist no less than 15 days in advance to the California Department of Fish and Wildlife and the United States Fish and Wildlife.</p> <p>MM 4.4-11 The following measures will be implemented to avoid take of blunt-nosed leopard lizard and to ensure protection of these animals during Project activities:</p> <p>a. Project activities will avoid all potential burrows that may be occupied by blunt-nosed leopard lizards. Suitable burrows within and adjacent to potential habitat for the species should be avoided by a minimum distance of 50-feet in all areas where ground-disturbing Project activities will occur.</p> <p>b. No more than one year prior to ground disturbing activities, focused surveys following current California Department of Fish and Wildlife and United States Fish and Wildlife protocols for detection of this species or other methods approved by both agencies shall be conducted in all potential blunt-nosed leopard lizard habitat within the work site and a 250-foot buffer area. If no individual blunt-nosed leopard lizards are observed during focused surveys, and surveys are current (e.g., completed in the same calendar year), then Project activities may proceed.</p> <p>c. If blunt-nosed leopard lizards are detected during focused surveys, a blunt-nosed leopard lizard avoidance plan shall be prepared for the Project that will result in avoidance of incidental take of this species unless take is separately authorized under a Natural Communities Conservation Plan and appropriate federal authorization is obtained. At a minimum, the blunt-nosed leopard lizard avoidance plan shall be provided to the California Department of Fish and Wildlife and the County, and shall contain the following elements:</p> <p>1. A Worker Environmental Awareness Program shall be implemented for all construction personnel before construction begins (see MM 4.4-18).</p> <p>2. During periods that are optimal for blunt-nosed leopard lizard activity (early spring through late fall), a qualified biologist will be present during all ground disturbing activities. The qualified biologist will check the Project site(s) and access route(s) daily during the blunt-nosed leopard lizard active season to determine presence or absence of lizards in or near the work areas. Monitoring by a qualified biologist is not required during periods of inactivity (the winter season).</p>		

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<div><div><div>3. All open trenches or excavations shall be covered at the end of each workday or protected with the use of exclusion fencing to prevent wildlife entrapment. If an excavation is too large to cover, escape ramps shall be installed at an incline ratio of no greater than 2:1. All trenches and pipes shall be inspected for the presence of wildlife each day prior to the commencement of work. If blunt-nosed leopard lizards are observed at the work site during construction, construction shall cease within a 250-foot radius and the United States Fish and Wildlife Service and the California Department of Fish and Wildlife shall be consulted to determine what additional measures would be necessary to prevent take of this species.</div><div>4. Offsite locations where blunt-nosed leopard lizards have been observed or are likely to occur shall be clearly marked to prevent workers from driving off the road and to prevent inadvertent destruction of burrows. Barriers, such as exclusionary fencing may be installed. All construction equipment and construction personnel vehicles will be checked prior to moving to ensure no blunt-nosed leopard lizard are under equipment/vehicles.</div><div>5. A speed limit of 10 miles per hour shall be posted and observed within 0.25 miles of any reported blunt-nosed leopard lizard observation.</div><div>6. Construction activities shall avoid burrows that may be used by blunt-nosed leopard lizards. Any location of proposed construction activity with potential to collapse or block burrows (i.e., stockpile storage, parking areas, staging areas, trenches) will be identified prior to construction in the blunt-nosed leopard lizard avoidance plan and approved by the qualified biologist. The qualified biologist may allow certain activities in burrow areas if the combination of soil hardness and activity impact is not expected to collapse burrows and no blunt-nosed leopard lizards have been found during pre-Project surveys in the impact area.</div><div>7. All individual blunt-nosed leopard lizards observed above-ground will be avoided. Any individual blunt-nosed leopard lizard that may enter the Project site(s) would be allowed to leave unobstructed, and on its own accord. If a blunt-nosed leopard lizard is detected during biological monitoring or observed at any other point, the California Department of Fish and Wildlife and the United States Fish and Wildlife Service shall be notified to determine what additional measures would be necessary to prevent take of the species.</div></div><div><div>MM 4.4-12 The Applicant shall comply with the following:</div><div><div>a. Plant surveys for Protected Species and Sensitive Species must be completed by a qualified biologist during the appropriate blooming periods for species identification and detection. Plant surveys shall be conducted in accordance with all applicable protocols established by the United States Fish and Wildlife Service and the California Department of Fish and Wildlife for particular plant species ("Plant Survey Protocol"), and shall extend 50 feet from areas where any new disturbance would occur unless a greater survey distance is specified in the Plant Survey Protocol. All detected plant populations of Protected Species and Sensitive Species shall be identified in the field during the surveys with temporary flags or other visible materials to avoid and minimize impacts to the plant populations from any disturbance activities.</div><div>b. No incidental take or relocation of any plant listed under the federal Endangered Species Act, the California Endangered Species Act, or the California Native Plant Protection Act may occur unless the incidental take is authorized by the United States Fish and Wildlife Service and/or the California Department of Fish and Wildlife in a permit or other authorization, or in an approved Habitat Conservation Plan or Natural Communities Conservation Plan. If focused plan surveys detect the presence of any listed plant, the plant populations shall be buffered from disturbance activities by implementing applicable impact avoidance protocols established by the United States Fish and Wildlife Service and/or the California Department of Fish and Wildlife unless incidental take authority is obtained. Projects covered under incidental take authority shall conduct activities in accordance with the take authorization. The qualified biologist may consult with the California Department of Fish and Wildlife to determine the recommended buffer distances required to prevent incidental take of a listed plant if avoidance protocols have not been established</div></div></div></div>		

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<p>for the species. The qualified biologist shall confirm that all applicable listed plant buffers have been implemented prior to the commencement of any disturbance activity.</p> <p>c. Sensitive species plant populations which are not Protected Species that may be impacted by new ground disturbing activities must be avoided by a 50-foot buffer, as delineated and implemented by a qualified biologist used by the applicant.</p> <p>MM 4.4-13 A Worker Environmental Awareness Program shall be developed and implemented for all personnel that could access the site prior to commencing any disturbance activities. The program shall consist of an on-site or center presentation that will describe the locations and types of sensitive plant, wildlife, and sensitive natural communities (collectively, “Biological Resources”) on and near the site, an overview of the laws and regulations governing the protection of Biological Resources, the reasons for protecting the Biological Resources, the specific protection and avoidance measures that are applicable to the site, and the identity of designated points of contact should questions or issues arise, including the qualified biologist. The program shall provide training to recognize, avoid and report to applicable qualified biologists any Biological Resources on the site.</p> <p>a. The Worker Environmental Awareness Program shall emphasize the need to avoid contact with onsite wildlife, and avoid entry into areas where Biological Resources have been identified based on pre-disturbance field surveys and to implement the buffer avoidance or other protection measures established by the United States Fish and Wildlife Service shall be identified California Department of Fish and Wildlife or required by the Biological Resource mitigation measures. The training shall emphasize the importance of not feeding or domesticating wildlife and the need to avoid any trash, microtrash, or potential food disposal onsite except in animal-proof containers emptied daily to avoid attracting, or causing adverse impacts to special status wildlife.</p> <p>b. All onsite personnel must sign a statement verifying that they have completed the Worker Environmental Awareness Program, and that they understand and agree to implement the biological requirements for the worksite. If signed employee statements are not available, documentation may be provided by Worker Environmental Awareness Program training records, which shall be kept by the Applicant for a minimum of 5 years. Each Applicant shall maintain a list of all persons who have completed the training program, and shall provide the list to the County or to state and federal wildlife agency representatives upon request.</p> <p>MM 4.4-14 The following additional measures shall be implemented to avoid and minimize potential significant adverse impacts to Protected and Sensitive Species:</p> <p>a. All vehicles shall observe a 20-mile-per-hour speed limit in all areas of disturbance and on unpaved roads unless otherwise posted. Off-road traffic outside of designated access routes is prohibited. Speed limit signs shall be posted in visible locations at the point of site entry and at regular intervals on all unpaved access roads.</p> <p>b. All disturbance activities, except emergency situations or drilling that may require continuous operations, shall only occur during daylight hours. Night time disturbance activity for drilling purposes shall use directed lighting, shielding methods, and comply with applicable lighting mitigation measures.</p> <p>c. All food-related trash items and all forms of microtrash, such as wrappers, cans, bottles, bottle tops, and food scraps shall be disposed of in closed, animal proof containers and removed daily from the site.</p> <p>d. Excavations, spoils piles, access roadways, and parking and staging areas shall subject to dust control as set forth in the dust control mitigation measures.</p> <p>e. The use of herbicides for vegetation control shall be restricted to those approved by the United States Fish and Wildlife Service and the California Department of Fish and Wildlife. No rodenticides shall be used on any site unless approved by the United States Fish and Wildlife Service, and the California Department of Fish and Wildlife, and shall observe label and other restrictions mandated by the United States Environmental Protection Agency, California Department of Food and</p>		

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<p>Agriculture, and state and federal laws and regulations. For split estates, no herbicides for vegetation control may occur in Tier 2 areas without surface owner approval.</p> <p>f. No plants or wildlife shall be collected, taken, or removed from the site or any adjacent locations except as necessary for Project-related vegetation removal or wildlife relocation by a qualified biologist and subject to all applicable permits and authorizations.</p> <p>g. All open trenches or excavations shall be covered at the end of each workday to prevent wildlife entrapment. If an excavation is too large to cover, escape ramps shall be installed at an incline ratio of no greater than 2:1. All trenches and pipes shall be inspected for the presence of wildlife each day prior to the commencement of work.</p> <p>h. To enable San Joaquin kit foxes and other wildlife to pass through the Project site, any perimeter fencing shall include a 4- to 8-inch opening between the fence mesh and the ground or the fence shall be raised 4 inches above the ground except blunt-nosed leopard lizard exclusion fencing. The bottom of the fence fabric shall be knuckled (wrapped back to form a smooth edge) to protect wildlife.</p> <p>i. All vertical tubes used in Project construction and chain link fencing poles, shall be temporarily or permanently capped to avoid the entrapment and death of special-status wildlife and birds. All pipes 1.5 inches or greater in diameter stored overnight on a project location must have end caps or other physical barriers that prevent wildlife from entering the pipe. wildlife.</p> <p>j. All dead or injured special status wildlife shall be left in place and reported to the United States Fish and Wildlife Service and the California Department of Fish and Wildlife within 48 hours of discovery for rescue or salvage. Discovery of state or federal listed species that are injured or dead shall also be managed consistent with regulatory requirements, including being reported immediately via telephone and within 24 hours in writing, and with a copy to Kern County Planning and Natural Resources.</p> <p>k. All drilling installations and operations will comply at all times with the applicable federal, State, county, and local law ordinances and regulations.</p> <p>l. During pre-construction surveys, the qualified biologist shall delineate previously disturbed areas to be used by the applicant to minimize the amount of new disturbance.</p> <p>m. All concrete and asphalt debris should be removed from the site for recycling or disposal at an authorized, permitted facility.</p> <p>n. No vehicles or construction equipment shall be parked within a wetland or waterbody/dry wash.</p> <p>o. Tracked vehicles and other construction equipment must be washed or maintained to be weed-free prior to entering and working within areas of new disturbance.</p> <p>p. All washing of trucks, paint, equipment, or similar activities should occur in areas where runoff is fully contained for collection and offsite disposal. Wash water may not be discharged from the site and shall be located at least 100 feet from any water body, or sensitive Biological Resources.</p> <p>q. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries or waterbody, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land.</p> <p>r. All areas that must be avoided as result of the pre-disturbance surveys, and areas where new disturbance will occur, shall be clearly delineated by fencing or staking and flagging and/or rope or cord.</p> <p>s. No firearms shall be allowed on any site.</p> <p>t. No pets shall be allowed on any site.</p>		

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<div><div><div>u. No smoking may occur except in designated areas.</div><div>v. If ground disturbance is intended to be temporary and does not occur on cultivated and crop lands, perform topsoil segregation during construction activities to preserve the seed bank for restoration efforts. Store the segregated topsoil separate from the subsoil and restore segregated topsoil to its original location.</div></div><div>MM 4.4-15 Ground disturbance shall be mitigated at a 1.0 to 1.0 ratio (one-acre of new disturbance shall require one-acre of mitigation) except in Tier 1 areas that contain existing disturbance of 70% or greater which shall be mitigated at a 1.0 to 0.5 ratio (one-acre of new disturbance shall require one-half acre of mitigation), for the land included in the Site Plan. This compensatory mitigation requirement does not apply to construction on ground for which compensatory mitigation has already been provided, or on ground that has been previously disturbed (e.g., cleared of vegetation for other oil and gas extraction uses, existing unpaved roads, and existing unvegetated well pads). Ground disturbance activities that are authorized by permits or other written authorizations approved by the United States Fish and Wildlife Service and the California Department of Fish and Wildlife, which include avoidance and compensatory mitigation acreage requirements, may be used to satisfy this County compensatory mitigation ratio. Compensatory mitigation shall be required for the actual acreage of ground disturbance documented during the site plan review and completion process. New disturbance mitigation may be satisfied by one or a combination of the following measures:<div><div>a. The recordation of a conservation easement or similar permanent, long-term conservation management agreement in a form acceptable to the County for land within the Project Area on land that has mitigation value. The easement lands may be owned by an Applicant or a third party under contract with an Applicant. Larger land areas may be placed under a conservation easement or similar agreement, and an Applicant may “draw down” the conserved land as needed to satisfy the acreage mitigation requirements for multiple site plan review conformity permits or other authorizations from the County for oil and gas activities.</div><div>b. Acquisition of land preservation credits from a mitigation bank located within the Project Area which is owned by the County, on other lands approved by the County, or on lands approved for mitigation or conservation purposes by the United States Fish and Wildlife Service or the California Department of Fish and Wildlife.</div><div>c. Removal of legacy oil and gas equipment, inclusive of compliance with applicable legal requirements (e.g., well plugging and abandonment requirements under state or federal regulations), restoration of the surface grade to be consistent with surrounding lands, complete a reseeded effort using native species, and notification of the site owner (if not the Applicant) of the completion of the removal and grading restoration work.</div><div>d. Enhancement or restoration of existing habitat on lands already subject to a conservation easement or similar agreement, or which become subject to a conservation easement or similar agreement subsequent to the certification of this Environmental Impact Report, provided that such activities are covered in a permit or authorization, conservation plan, Habitat Conservation Plan, or Natural Community Conservation Plan, approved by the United States Fish and Wildlife Service or the California Department of Fish and Wildlife.</div><div>e. Payment of a biological resources mitigation fee for the acquisition and management of mitigation lands, legacy equipment removal, and/or land enhancement already subject to conservation easements or a similar agreements under the terms of any biological resource mitigation program that is adopted by Kern County and approved by the United States Fish and Wildlife Service or the California Department of Fish and Wildlife. The County shall coordinate with the United States Fish and Wildlife Service or the California Department of Fish and Wildlife to identify priority conservation areas and potential conservation partners and funding sources to increase the efficiency and effectiveness of mitigation fee expenditures.</div></div></div></div>		

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.4-2 Have a Substantial Adverse Effect on Any Riparian Habitat or Other Sensitive Natural Community Identified in Local or Regional Plans, Policies, Regulations, or by the California Department of Fish and Wildlife or the United States Fish and Wildlife Service	Potentially significant	Implement MM 4.4-1 through 4.4.15 , described above, and dust control, spill and hazardous material avoidance and containment, and surface and subsurface water quality and hydrology mitigation measures. MM 4.4-16 Pre-disturbance surveys shall be conducted by a qualified biologist during the appropriate periods for detecting Sensitive Natural Communities that could occur within the Project Area. The surveys shall be completed consistent with applicable protocols approved by the United States Fish and Wildlife Service and/or the California Department of Fish and Wildlife, including the Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (California Department of Fish and Wildlife 2009). The qualified person shall map and identify all sensitive natural communities, including riparian communities that occur in or within 100 feet of any new disturbance area. The site plan for the proposed activity shall identify waters, wetlands, resources subject to section 1600 of the CFGC, and other riparian habitats that occur in and within 100 feet of the disturbance area. MM 4.4- 17 No land disturbance activity in any Sensitive Natural Community that requires a state or federal permit, including state or federally regulated wetlands and waters, shall occur unless the activity is specifically authorized by the issuance of permits or approvals as required by state and federal law. This provision is not intended to restrict survey activities or restrict permit approvals for such disturbance activities. However, no new wells, tanks, sumps or ponds shall be constructed within 50 feet of federal or state waters or wetlands.	Less than significant	All Tiers
Impact 4.4-3 Have a Substantial Adverse Effect on Federally Protected Wetlands as Defined by Section 404 of the Clean Water Act (Including, but Not Limited to, Marsh, Vernal Pool, Coastal, etc.) through Direct Removal, Filling, Hydrological Interruption, or Other Means	Potentially significant	Implementation of the Biological Resources mitigation measures would ensure that oil and gas activities would not disturb state or federally regulated wetlands and waters unless the activity is specifically authorized by the issuance of permits or approvals as required by state and federal laws and that activities in the vicinity of wetlands and water bodies would not adversely disturb them. Other mitigation measures identified in this Environmental Impact Report would further reduce potential state or federally jurisdictional wetland and waters, including dust control, spill and hazardous material avoidance and containment, surface and subsurface water quality and hydrology, mitigation measures.	Less than significant	All Tiers
Impact 4.4-4 Interfere Substantially with the Movement of any Native Resident or Migratory Fish or Wildlife Species, or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native Wildlife Nursery Sites	Potentially significant	Implementation of the Biological Resources mitigation measures would reduce wildlife movement impacts. Other mitigation measures identified in this Environmental Impact Report to further reduce wildlife movement impacts, include dust control, nighttime lighting, noise controls, spill and hazardous material avoidance and containment,, and surface and subsurface water quality and hydrology (including but not limited to Kern River and Poso Creek channels), measures.	Less than significant	All Tiers
Impact 4.4-5 Conflict with Any Local Policies or Ordinances Protecting Biological Resources, Such as a Tree Preservation Policy or Ordinance	Potentially significant	MM 4.4-18 In the event that new disturbance would occur at a site within an oak woodland area as defined in Section 1.10.10 of the Kern County General Plan Land Use, Open Space and Conservation Element (10% or greater oak tree cover), the Applicant shall comply with the minimum 30% canopy retention standard in Section 1.10.10 KK (a).	Less than significant	All Tiers
Impact 4.4-6 Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan	Potentially significant	MM 4.4-19 Applicants shall fund through the Site Conformity Review administrative fee, preparation by Kern County of, an annual report describing the Project’s ground disturbance acreage, and the acreage of compensatory mitigation lands, in each Subarea. For Covered Activities within areas included in proposed HCPs, the requirements of MM 4.4-1 – 4.4-19 may be superseded by specific requirements imposed by USFWS as part of approval of a federal incidental take permit (e.g., under Section 10 or Section 7 of the Endangered Species Act), or by CDFW as part of approval of a state incidental take permit (e.g., under the Fish and Game Code), provided that USFWS (in the case of a federal incidental take permit) or CDFW (in the case of a state incidental take permit) concludes in writing that such requirements provide equivalent or greater protection than MM 4.4-1 – 4.4-19 (or any subset thereof).	Less than significant	All Tiers

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.4-7 Cumulative Impact to Biological Resources	Potentially significant	Implement MM 4.4-1 through MM 4.4-19 , as described above.	Significant and unavoidable	All Tiers
Cultural Resources				
Impact 4.5-1 Cause a Substantial Adverse Change in the Significance of a Historical Resource as Defined in Section 15064.5	Potentially significant	MM 4.5-1 Prior to initiating ground disturbance activities for an activity for which a conformity review is required, the Applicant shall: a. Provide an archival records search completed by a qualified archaeologist. This shall include an examination of the California Historical Resources Information Files at the Southern San Joaquin Valley Information Center, California State University, Bakersfield, and a search of the Native American Heritage Commission Sacred Lands Files, Sacramento. The Applicant may rely on a previously performed records search for subsequent ground disturbing activities. b. If an application location has been previously surveyed and no cultural resources have been recorded on it, no further cultural resources studies shall be required. c. Implement either: 1. If a site plan includes land that has experienced 100% previous ground-surface disturbance, or is within a section with 300 or more existing oil wells or other agricultural, industrial or urban uses, and the records searches indicate that no cultural or Native American resources are known on it, no further cultural resources studies shall be required. All other application locations shall be subject to intensive (100%) pedestrian ground-surface survey (phase I survey/Class III inventory) by qualified archaeologists. The Applicant may rely on a previously performed ground surface survey for subsequent ground disturbing activities; or 2. If an application location has not been previously surveyed based on the records search information, an intensive (100%) pedestrian ground-surface survey (Phase I survey/Class III inventory) by qualified archaeologists shall be required. d. All prehistoric/Native American archaeological sites, whether identified during the records searches or during the intensive survey, shall be demarcated by a qualified archaeologist, fenced by the Applicant, and preserved in place. e. Historical (Euro-American) archaeological sites that are potentially eligible for listing in the National Register of Historic Places shall be evaluated by a qualified archaeologist and must meet the requirements of the National Historic Preservation Act of 1966 in order to qualify. Qualifying sites, structures and equipment that are identified during the records search or field survey shall be fenced and preserved in open-space, removed and curated, or treated using data recovery procedures that follow the guidelines of the Secretary of the Interiors Standards for Architectural and Engineering Documentation. f. Historical (Euro-American) archaeological site types relating to oil and gas activities that have been determined Not Significant/Unique shall require no archaeological study or treatment. g. All oil and gas industry employees conducting work in the area identified on the Conformity Site Plan shall complete Worker Environmental Awareness Program training including training dedicated to cultural resources protection.	Less than significant	All Tiers
Impact 4.5-2 Cause a Substantial Adverse Change in the Significance of an Archaeological Resource as Defined in Section 15064.5	Potentially significant	Implement MM 4.5-1 , as described above.	Less than significant	All Tiers

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.5-3 Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature	Potentially significant	MM 4.5 -2 As part of any Worker Environmental Awareness Program training, all construction personnel shall be trained regarding the recognition of possible buried paleontological resources and protection of paleontological resources during construction, prior to the initiation of construction or ground-disturbing activities. Training shall inform construction personnel of the procedures to be followed upon the discovery of paleontological materials. All personnel shall be instructed that unauthorized collection or disturbance of fossils is unlawful. MM 4.5 -3 All permits for new wells that use Enhanced Oil Recovery or Well Stimulation methods shall pay a be charged a mitigation fee of \$50 per well shall be paid for to the Buena Vista Museum to fund the continued education and curation of paleontological resources and provide educational support regarding the paleontological history of the region.	Less than significant	All Tiers
Impact 4.5-4 Disturb any Human Remains, Including Those Interred Outside of Formal Cemeteries	Potentially significant	MM 4.5-4 In the event archaeological materials are encountered during the course of ground disturbance or construction, the Project operator/contractor shall cease any ground disturbing activities within 50 feet of the find. The qualified archaeologist shall evaluate the significance of the resources and recommend treatment measures. Per California Environmental Quality Act Guidelines Section 15126.4(b)(3), Project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources. Consistent with California Environmental Quality Act Guidelines Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the qualified archaeologist shall develop additional treatment measures in consultation with the County, which may include data recovery or other measures. The Planning and Natural Resources Department shall consult with Native American representatives in determining treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. If after consultation it is determined that archaeological materials are to be recovered then they shall be curated at an accredited curation facility. The qualified archaeologist shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to the Southern San Joaquin Valley Information Center. In the event archaeological materials are encountered, in Tier 2 the surface owner shall be notified immediately. MM 4.5-5 If human remains are uncovered during Project construction, the Applicant shall immediately halt all work, contact the Kern County Coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the California Environmental Quality Act Guidelines. The Kern County Planning and Natural Resources Department shall be notified concurrently. If the County Coroner determines that the remains are Native American, the Project proponent shall contact the Native American Heritage Commission, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by Assembly Bill 2641). The Native American Heritage Commission shall designate a Most Likely Descendant for the remains per Public Resources Code 5097.98. Per Public Resources Code 5097.98, the applicant, in coordination with the landowner, shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the discussion and conference with the Most Likely Descendant has occurred, if applicable, taking into account the possibility of multiple human remains. If the remains are determined to be neither of forensic value to the Coroner, nor of Native American origin, provisions of the California Health and Safety Code (7100 et. seq.) directing identification of the next-of-kin will apply. In the event human remains are uncovered, in Tier 2 the surface owner shall be notified immediately.	Less than significant	All Tiers
Impact 4.5-5 Cumulative Impacts to Historical, Archaeological, or Paleontological Resources and Human Remains	Potentially significant	Implement MM 4.5-1 through MM 4.5-5 , as described above.	Significant and unavoidable	

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Geology and Soils				
Impact 4.6-1 Expose People or Structures to Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving the Rupture of a Known Earthquake Fault	Potentially significant	MM 4.6-1 Prior to beginning a ground disturbance activity, the Applicant shall comply with the following regulations (as applicable) and confirm compliance in its Site Plan Conformity Review application documentation: a. Alquist-Priolo Earthquake Fault Zoning Act. b. California Building Code. c. California Geologic Energy Management Division regulations, as identified in the California Code of Regulations, Title 14, Division 2, Chapter 4, including regulations implementing Senate Bill 4 as applicable. If hydraulic fracturing is conducted for any well associated with the Site Plan Conformity Review, the Applicant shall comply with requirements to monitor the California Integrated Seismic Network for indication of an earthquake of magnitude 2.7 or greater for the period of 10 days following the end of hydraulic fracturing. The earthquake search radius shall be consistent with Geologic Energy Management Division Senate Bill 4 regulations. The data will be submitted to Geologic Energy Management Division for an evaluation of the risks and actions consistent with Geologic Energy Management Division Senate Bill 4 regulations. In approving a well stimulation treatment permit that would authorize, within an urban area (i.e., an area with a population over 50,000, as defined by the U.S. Census Bureau), the emplacement of well stimulation fluids into an oil or gas formation that has not been previously been subject to well stimulation activity, and/or into an oil or gas formation for which the Geologic Energy Management Division does not yet possess adequate information about formation fracture geometries, the Geologic Energy Management Division shall impose a permit condition requiring that the applicant conduct ground monitoring to characterize as built fracture geometries prior to, during, and post-hydraulic fracturing. Monitoring shall also be conducted during fracturing treatments by use of applicable microseismic fracture mapping, tilt measurements, tracers, or proppant tagging. Copies of ground monitoring records shall be provided to the County and Geologic Energy Management Division for review and approval within 30 days of well stimulation treatment. d. Additionally, the Applicant shall: 1. Avoid placement of structures intended for human occupancy on or within 50 feet of any active faults designated and mapped pursuant to the Alquist-Priolo Earthquake Fault Zoning Act where the fault breaks the surface. 2. Have a professional geologist prepare a fault rupture hazard evaluation according to guidelines in California Geological Survey Special Publication 42, 2007 for new developments with structures that are intended for human occupancy. 3. All Class II injection wells shall be authorized, and shall comply with all applicable legal requirements, Underground Injection Control Program Approval permit conditions, and be operated according to the California Code of Regulations Title 14 requirements, as described in the mitigation measures for Hydrology and Water Quality. 4. Ensure that active fault trace placement restrictions are in place for all permanent tanks and storage reservoirs used to store, treat, or transport hazardous materials or materials that are considered pollutants to surface water and groundwater, located in an Earthquake Fault Zone. Ensure that all newly installed pipelines subject to 49 Code of Federal Regulations (CFR) Parts 192 and 195, are engineered and constructed in compliance with the requirements of the pipeline safety regulations, as set forth by the Pipeline Hazardous Materials Safety Administration (PHMSA). All other newly installed pipelines that transport gas or hazardous liquids are to be constructed, tested operated and maintained in accordance with good oilfield practice and applicable standards set forth and approved by the State Oil and Gas Supervisor. Ensure that all new pipelines designated for or water used for fire suppression are engineered and constructed in compliance with the requirements of California Building Code Chapter 9, Fire Protection Systems, and the California Fire Code to address potential fault rupture displacements.	Less than significant	All Tiers

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		MM 4.6-2 All structures designed for human occupancy shall be designed to withstand substantial ground shaking in accordance with applicable California Building Code seismic design standards and Kern County Building Code.		
Impact 4.6-2 Expose People or Structures to Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Strong Seismic Ground Shaking	Potentially significant	Implement MM 4.6-1 and MM 4.6-2 , as described above.	Less than significant	All Tiers
Impact 4.6-3 Expose People or Structures to Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Seismic-Related Ground Failure, Including Liquefaction	Potentially significant	Implement MM 4.6-1 and MM 4.6-2 , as described above.	Less than significant	All Tiers
Impact 4.6-4 Expose People or Structures to Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving Landslides	Potentially significant	MM 4.6-3 Operators shall avoid siting wells or accessory equipment and facilities on slopes greater than 30%, unless the applicant provides written evidence that they are unable to obtain a mineral lease provides written evidence that the applicant is unable to obtain a mineral lease for a location that is less than 30% slope or professional engineering certification that they cannot slant drill from a location that is less than 30% slope. If the applicant provides such written evidence, then a site-specific geotechnical report certified by a licensed engineering professional shall be submitted in conjunction with any permit detailing the work needed on the slope to construct and operate in full compliance with general engineering practices to ensure slope stability and protections for downslope properties. The site-specific engineering certification and recommendations shall be submitted and reviewed by the Kern County Public Works Department and no permit shall be issued until the Kern County Public Works Department provides an engineering approval of the recommendations to protect life and property. All recommendations required by the approved engineering certification from Kern County Public Works shall be implemented. Any requests for deviations from the approved certification will require the processing of a Conditional Use Permit as a discretionary action.	Less than significant	All Tiers
Impact 4.6-5 Result in Substantial Soil Erosion or the Loss of Topsoil	Potentially significant	Implement stormwater mitigation measures, as described in Section 4.9, Hydrology and Water Quality.	Less than significant	All Tiers
Impact 4.6-6 Be Located on a Geological Unit or Soil That is Unstable, or That Would Become Unstable as a Result of the Project, and Potentially Result in On- or Off-site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse	Potentially significant	Implement MM 4.6-3 , as described above, and the following: MM 4.6-4 The Applicant shall confirm compliance with, and shall implement, a Geologic Energy Management Division approved re-pressuring plan as required by Division 3, Chapter 1, Article 5.5 of the Public Resources Code, commencing with Section 3315. In developed areas where subsidence is confirmed or suspected, subsidence monitoring shall be required using Synthetic Aperture Radar studies and/or other methods as approved by the Geologic Energy Management Division to quantify and evaluate the potential effect on the area.	Less than significant	All Tiers

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.6-7 Be Located on Expansive Soil, as Defined in Table 18-1-B of the Uniform Building Code (1994), Creating Substantial Risks to Life or Property	Potentially significant	MM 4.6-5 The Applicants shall avoid building infrastructure on expansive soil, unless the Applicant provides a professional engineering certification that they cannot slant drill from another location to access the site, and site-specific Professional Engineering certification is submitted concluding that the new equipment will not cause substantial risks to life or property. The site-specific professional engineering certification must be submitted, and reviewed by the Kern County Public Works Department and a memo provided that agrees that construction and operation of new equipment will not cause substantial risks to life or property as determined through established engineering standards. All recommendations required by the approved engineering certification from Kern County Public Works shall be implemented.	Less than significant	All Tiers
Impact 4.6-8 Have Soils Incapable of Adequately Supporting the Use of Septic Tanks or Alternative Wastewater Disposal Systems Where Sewers Are Not Available for the Disposal of Wastewater	Less than significant	Implement MM 4.6-1 , as described above.	Less than significant	All Tiers
Impact 4.6-9 Cumulative Impacts to Geologic and Soil Resources	Potentially significant	Implement MM 4.6-1 through MM 4.6-5 , as described above.	Less than significant	All Tiers
Green House Gas Emissions				
Impact 4.7-1 Generate Greenhouse Gas Emissions, Either Directly Or Indirectly, that may have a Significant Impact on the Environment	Potentially significant	MM 4.7.1 An Applicant covered by the Cap-and-Trade Program with permitted stationary sources shall comply with the Cap-and-Trade regulation (especially by surrendering greenhouse gas allowances or offset credits to satisfy their compliance obligation under the Program), and implement Best Performance Standards applicable to greenhouse gas reduction for Components at Light Crude Oil and Natural Gas Production, Natural Gas Processing Facilities, Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants (San Joaquin Valley Air Pollution Control District 2010), Thermally Enhanced Oil Recovery Wells (San Joaquin Valley Air Pollution Control District 2010a), Steam Generators (San Joaquin Valley Air Pollution Control District 2010b), and Front-line Organic Liquid Storage Tanks (San Joaquin Valley Air Pollution Control District 2011). MM 4.7.2 Each Applicant covered by the Cap-and-Trade Program shall comply with applicable Cap-and-Trade regulations, and other applicable greenhouse gas emission control and reduction regulations as these may be adopted or amended over time, to reduce, avoid, mitigate and/or sequester greenhouse gas emissions from Project-related air emissions. MM 4.7-3 Each Applicant shall implement methods to recover for reuse or destroy methane existing in associated gas and casinghead gas, as follows: <div><div>a. Recover all associated gas produced from the reservoir via new wells, regardless of the well type, except for gas produced from wildcat and delineation wells or as a result of start-up, shutdown and maintenance activities (whether planned or unplanned), system failures, and emergencies in accordance with San Joaquin Valley Air Pollution Control District regulations (Rule 4401 and 4409), as this may be amended over time.</div><div>b. Compliance with the expected California Air Resources Board methane regulation.</div></div> MM 4.7-4 Each Applicant shall offset all greenhouse gas emissions not covered by the Cap-and-Trade program or other mandatory greenhouse gas emission reduction measures through Applicant reductions of greenhouse gas emissions as verified by Kern County, through acquisition of offset credits from the California Air Pollution Control Officers Association Exchange Register or other third party greenhouse gas reductions, with consultation as to the validity of methodology for calculating reductions verified by the San Joaquin Valley Air Pollution	Less than significant	All Tiers

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		Control District and accepted by Kern County, or through inclusion in an Emission Reduction Agreement, to offset Project-related greenhouse gas emissions that are not included in the Cap-and-Trade program to assure that no net increase in greenhouse gas emissions from the Project.		
Impact 4.7-2 Conflict with any Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases	Potentially significant	Implement MM 4.7-3 , as described above.	Significant and unavoidable	All Tiers
Impact 4.7-3 Cumulative Greenhouse Gas Emissions Impacts	Potentially significant	Implement MM 4.7-4 , as described above.	Significant and unavoidable	All Tiers
Hazards and Hazardous Materials				
Impact 4.8-1 Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials	Potentially significant	<p>MM 4.8-1 The Applicant shall provide a comprehensive Worker Environmental Awareness Program to the County with its first Site Plan Conformity Review permit application in each calendar year. The program shall include all training requirements identified in Applicant Best Management Practices and mitigation measures, and include training for all field personnel (including Applicant employees, agents and contractors). The Worker Environmental Awareness Program shall include protocols and training for responding to and handling of hazardous materials and hazardous waste management, and emergency preparedness, release reporting, and response requirements. In Tier 2, the Worker Environmental Awareness Program shall be provided to the surface owner at the time of the application pathway process so the surface owner may educate employees as well.</p> <p>MM 4.8-2 The Applicant shall arrange for transportation, storage and disposal of all hazardous materials in compliance with the Hazardous Materials Transportation Act. Drivers transporting hazardous materials or wastes should follow the measures recommended by the Federal Motor Carrier Safety Administration for avoiding roll-over accidents which include the following standards for cargo tank trucks:</p> <ul style="list-style-type: none">a. Avoid sudden movements that may lead to roll-overs.b. Maintain control of the load in turns and on straight roadways.c. Identify in advance of transport high risk areas on designated roads.d. Follow driver mandates for being alert and attentive behind the wheel.e. Control speed and maintain proper "speed cushions" described by the Federal Motor Carrier Safety Administration. <p>MM 4.8-3 The Applicant shall implement the following practices based on practices and standards established by the United States Department of Labor Occupational Safety and Health Administration (OSHA) safety standards and as amended or modified by the State of California Department of Industrial Relations, Division of Occupational Safety and Health (DOSH – Cal/OSHA) and the Kern County Fire Department.</p> <ul style="list-style-type: none">a. Construction activities shall be conducted to allow for easy clean-up of spills. Construction crews shall have the appropriate number of tools, supplies, and absorbent and barrier materials to contain and recover spilled materials.b. Fuels and lubricants shall be stored only at designated staging areas. Fuel and lubricant tanks shall have secondary spill containment (e.g., curbs). Compliance with laws and regulations is required, including compliance with hazardous materials and hazardous waste storage laws, as applicable.	Less than significant	All Tiers

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Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<div><div><div><div><div>c.</div><div>Storage of fuel and lubricants in the staging area shall be at least 100 feet away from the edge of water bodies. Refueling and lubrication of equipment shall be restricted to upland areas at least 100 feet away from stream channels and wetlands.</div></div><div><div>d.</div><div>Any fuel truck shall carry an oil spill response kit and spill response equipment at all times.</div></div><div><div>e.</div><div>Applicants shall be required to perform all routine equipment maintenance at the well pad or other suitable locations (i.e., maintenance yards), and promptly collect and lawfully dispose of wastes in compliance with existing regulatory requirements.</div></div><div><div>f.</div><div>Berms and/or dikes (secondary containment) shall be constructed around the permanent above-ground bulk tanks and the foundations shall be installed with a passive leak detection system, so that potential spill materials shall be contained and collected in specified areas isolated from any water bodies. Tanks shall not be placed in areas subject to periodic flooding or washout. Compliance with laws and regulations is required, including compliance with hazardous materials and hazardous waste storage laws as applicable, including for secondary containment, such as Geologic Energy Management Division regulation (Title 14, C.C.R. § 1773.1), which requires secondary containment in "an engineered impoundment such as a catch basin, which can include natural topographic features, that is designed to capture fluid released from a production facility."</div></div><div><div>g.</div><div>The appropriate amount and supply of sorbent and barrier materials shall be maintained on construction sites consistent with the type and level of construction activities. Sorbent and barrier materials shall also be utilized to contain runoff from contaminated areas consistent with CalOSHA regulations.</div></div><div><div>h.</div><div>Shovels and drums shall be stored at each well pad or be readily available. If small quantities of soil become contaminated, hand tools shall be used to collect the soil and the material shall be stored in storage drums. Large quantities of contaminated soil may be bio-remediated on-site or at a designated remediation facility, subject to government approval, or collected utilizing heavy equipment, and stored in drums or other suitable containers <u>approved for use and physically capable of containing the material</u> prior to disposal. Should contamination occur adjacent to staging areas as a result of runoff, shovels and/or heavy equipment shall be utilized to collect the contaminated material. Contaminated soil shall be disposed of in accordance with state and federal regulations.</div></div><div><div>i.</div><div>Above-ground tanks, valves and other equipment shall be visually inspected monthly and when the tank is refilled. Inspection records shall be maintained. Applicants shall periodically check tanks for leaks or spills.</div></div><div><div>j.</div><div>Drain valves on all tanks shall be locked to prevent accidental or unauthorized discharges from the tank.</div></div><div><div>k.</div><div>Equipment maintenance shall be conducted in staging areas or other suitable locations, <u>such as maintenance shops or yards.</u> (i.e., maintenance shops or yards).</div></div><div><div>l.</div><div>The Applicant shall maintain equipment in operating condition to reduce the likelihood of fuel or oil line breaks and leakage. Any vehicles with chronic or continuous leaks shall be removed from the site and repaired before being returned to operation.</div></div></div><div><div>MM 4.8-4</div><div>The Applicant shall implement the following measures to prevent, repair, and remediate accidental leaks and spills from oil and gas operations.<div><div>a.</div><div>The Applicant shall identify gas, oil and produced water pipelines to be used for each new or reworked well site in its Site Plan, and shall show the location of any sensitive receptor located within 300 feet of any such pipeline. For any pipeline located within 300 feet of a sensitive receptor, the Applicant shall present evidence that each such pipeline has been integrity tested using pressure testing or other accepted test methods by a qualified professional within a two-year period prior to submittal of the Site Plan, and shall provide a copy of the test result to the County. For all waste gas lines less than or equal to 4 inches in diameter, a Pipeline Management Plan shall be developed and implemented in accordance with California Geologic Energy Management Division regulations Title 14, Division 2, Chapter 4, Section 1774.2. The Pipeline Management Plan shall include:</div></div></div></div></div></div>		

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Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<div>1. A listing of information on each pipeline including, but not limited to: i. Pipeline type. ii. Grade. iii. Installation date of pipeline. iv. Design and operational pressure. v. Any leak, repair, inspection and testing history.</div> <div>2. A description of the testing method and schedule for all pipelines.</div> <div>b. The Applicant shall notify the Kern County Public Health Services Environmental Health Division, Certified Union Program Agency (CUPA), surface landowner, and sensitive receptors located within 300 feet, of any hazardous materials/waste release immediately upon discovery, and to other applicable agencies as required by other laws. The Applicant shall immediately contain the leak (e.g., by isolating or shutting down the leaking equipment), clean up contaminated media (e.g., soils), and repair the leak prior to recommencing operations. The Applicant shall report the status and progress of the leak repair and remediation work to the County and the CUPA on monthly intervals or predetermined intervals until the repair has been completed. Contaminated media shall be analyzed according to 22 C.C.R. §§ 66261.21-66261.24 for determination of hazardous waste disposal subject to the Hazardous Waste Determination procedures provided in 22 C.C.R. §66262.11.</div> <div>c. As part of the Site Plan, the Applicant shall identify the location and right of way for all pipelines to be used for the transport of oil, gas, and produced water, including pipelines that intersect the main transport line, based on existing data and using commercially available technology, and, based on the results of this analysis, shall identify any sensitive receptors within 300 feet of the pipeline for purposes of complying with Mitigation Measure 4.8-4. Mechanical integrity testing of all such pipeline lengths within 300 feet of a sensitive receptor shall be required pursuant to Mitigation Measure 4.8.4-a.</div> <div><u>d. If a release, identified pursuant to subsection (b), cannot be repaired or remediated within 48 hours, and has potential impact to sensitive receptors, the Applicant shall incur costs to sample and analyze the potentially affected area, which may include soil, groundwater, outdoor or indoor air of sensitive receptors within 300 feet of the leak. Applicant shall pay all temporary relocation costs (e.g., housing, food, and transportation) for any exposed sensitive receptor until such time as the leak has been repaired and post repaired -indoor air testing has been completed, as confirmed by identified agency having oversight of the remediation.</u></div> <div>MM 4.8-5 If, during grading or excavation work, the Applicant observes evidence of contamination or if soil contamination is suspected, work near the excavation site shall be terminated, the work area cordoned off and required health and safety procedures implemented for the location by the contractor's Health and Safety Officer. Samples shall be collected by a trained and qualified individual. Analytical data from suspected contaminated material shall be reviewed by the contractor's Health and Safety Officer. If the sample testing determines that contamination is not present, work may proceed at the site; however, if contamination is detected above regulatory limits, the Kern County Public Health Services Department shall be notified. All actions related to encountering unanticipated hazardous materials at the site shall be documented and submitted to the Kern County Public Health Services Department for legal direction from the regulatory agency.</div> <div>MM 4.8-6 The Applicant shall implement measures to prevent the release or accidental spillage of solid waste, garbage, construction debris, sanitary waste, industrial waste, naturally occurring radioactive materials, oil and other petroleum products, and other wastes into water bodies or water sources, including all applicable practices included in the most up-to-date versions of the following documents: Exemption of Oil and Gas Exploration and Production Wastes From Federal Hazardous Waste Regulations (EPA 2002). Equivalent industry standards such as Environmental Protection for Onshore Oil and Gas Productions and Leases (American Petroleum Institute 2009) and related standards may also be utilized, provided that a professional engineer, certified industrial hygienist or certified safety professional certifies to the County that such standards are as or more protective of human health and the environment, as compared to the standards in the referenced Environmental Protection Agency manual. The following are practices and standards that shall be implemented.<div>a. Classify the various oil and gas exploration and production wastes for disposal as described in United States Environmental Protection Agency 2002, and in accordance with applicable California laws and regulations.</div><div>b. Size reserve pits <u>to provide the physical capacity necessary</u> to avoid overflows.</div></div>		

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<div><div><div><div>c. Use closed loop mud systems with oil-based muds except in compliance with State Water Resources Board or Regional Water Quality Control Board requirements as provided in Mitigation Measure 4.9-3.</div><div>d. Review safety data sheets of materials used, and use the less toxic material for the operation.</div><div>e. Design systems with necessary the smallest volumes <u>for drilling mud systems to accomplish drilling operations on the CalGEM Permitspossible (e.g., drilling mud systems).</u></div><div>f. <u>Prevent accumulation Reduce the amount</u> of excess fluids entering reserve and production pits <u>beyond what is physically needed for maintaining well control.</u></div><div>g. Keep non-exempt wastes out of reserve or production pits.</div><div>h. Design the drilling pad to contain stormwater and rigwash.</div><div>i. Recycle and reuse oil-based muds and high density brines, when such recycling and reuse complies with hazardous waste laws and recycling laws.</div><div>j. Perform routine equipment inspections and maintenance to prevent leaks or emissions.</div><div>k. Reclaim oily debris and tank bottoms when such reclamation complies with hazardous waste laws and recycling laws.</div><div>l. Store only the volume of materials at facilities necessary for permitted work.</div><div>m. Construct berms around materials and waste storage areas that meet engineering standards to contain spills.</div><div>n. Perform routine inspections of materials and waste storage areas to locate damaged or leaking containers.</div><div>o. Train personnel in all waste management practices required by the mitigation measures, all legal standards and the permits issued by Kern County, CalGEM and all regulatory agencies.</div></div><div><div>MM 4.8-7</div><div>The following specific measures should be implemented at a minimum when conducting exploration and development activities:</div><div><div>a. Impervious secondary containment, such as containment dikes, containment walls, and drip pans shall be constructed and maintained around all qualifying petroleum facilities, including tank batteries and separation and treating areas consistent with the Environmental Protection Agency's Spill Prevention, Control, and Countermeasures regulation (40 Code of Federal Regulations 112). The containment structure must have sufficient volume to contain, at a minimum, the content of the largest storage tank containing liquid hydrocarbons within the facility/battery and engineered freeboard to contain precipitation. Drip pans shall be routinely checked and cleaned of petroleum or chemical discharges and designed to prevent access by wildlife and livestock.as determined by the qualified biologist.</div><div>b. Chemical containers shall not be stored on bare ground, and shall be maintained in good condition and shall be placed within secondary containment in case of a spill or high velocity puncture.</div><div>c. Containment dikes are not to be constructed with topsoil or coarse, insufficiently impervious spoil material that is insufficiently impervious to meet requirements. Containment is strongly suggested for produced water tanks. Chemicals shall be placed within secondary containment and stored so that the containers are not in contact with soil or standing water and product and hazard labels are not exposed to weathering.</div><div>d. Maintain a clean well location. Remove trash, junk, and other materials not in current use.</div><div>e. In approving a well stimulation treatment permit, the applicant shall include in the spill contingency plan prepared by a qualified professional as required by Section 1722.9 of Title 14 of the California Code of Regulations a protocol for measuring and reporting earthquake and earth consequences that occur during the well stimulation process, for the total number of well stimulation</div></div></div></div></div>		

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		<p>treatments are proposed to occur simultaneously at any given time. The Spill Contingency Plan shall include requirements for levels of personnel and equipment to respond to damage that could occur and that will be necessary to conduct post-earthquake inspection and repair plans to address any damage that has occurred. The Spill Contingency Plan shall include spill prevention, control and countermeasure plans to address the hazardous substances associated with well stimulation activities. The post-earthquake inspection procedures shall ensure the integrity of the mechanical systems and well integrity of wells used for stimulation or wastewater injection and idle wells that might have become conduits for escaping fluids or gases. The plan shall include procedures describing the necessary steps to be taken after service is disrupted in order to make the facilities secure, operational and safe as soon as possible</p> <p>MM. 4.8-8 Applicants shall use the accepted engineering standards for California oil operations recognized as safe and effective by CalGEM and other state and local regulatory agencies, including <u>applicable</u> American Petroleum Institute Standards <u>such as those listed below</u>, or other recognized sources imposing the same or equivalent standards, for their facility; operations and permitting. <u>Applicants and shall comply with the most stringent standards applicable to the specific operation such as the following:</u></p> <ul style="list-style-type: none">a. Use cements and well materials in well completions as described in Specifications for Cements and Materials for Well Cementing (American Petroleum Institute 2011).b. Prior to start-up of all new facilities, verify and prove the construction, installation, integration, testing, and preparation of systems have been completed as designed following the practices described in Facilities Systems Completion Planning and Execution (American Petroleum Institute 2013a).c. When the use of centralizers and stop-collars are required during well completion activities, follow the installation and testing requirements described in Recommended Practice for Centralizer Placement and Stop-collar Testing (American Petroleum Institute 2010a).d. Limit the environmental footprint of oil and gas exploration and production and reduce the incidence of releases of hazardous substances by complying with the practices described in Environmental Protection for Onshore Oil and Gas Production Operations and Leases (American Petroleum Institute 2009).e. Eliminate improper disposal by complying with the practices described in American Petroleum Institute Order No. G00004, Guidelines for Commercial Exploration and Production Waste Management Facilities (American Petroleum Institute 2001) or other legal methods. All disposal must follow applicable laws, regulations, and receiving facilities permit requirements.f. Limit the environmental footprint of exploration and production activities by complying with the practices described in Land Drilling Practices for Protection of the Environment (American Petroleum Institute 2010b) or other engineering guidance documents as accepted by CalGEM.g. When pressure testing is required by State or federal law, prior to pressurizing or re-pressurizing petroleum product pipelines, ensure the integrity of pipelines by complying with the practices described in Recommended Practice for the Pressure Testing of Steel Pipelines for the Transportation of Gas, Petroleum Gas, Hazardous Liquids, Highly Volatile Liquids, or Carbon Dioxide (American Petroleum Institute 20 13b) or other engineering guidance documents as accepted by CalGEM.h. To prevent releases of hazardous substances during oilfield construction, all pit and sump operations shall be conducted in accordance with State Water Resources Control Board General Orders or Regional Water Quality Control Board waste discharge requirements or general orders or other legal requirements applicable to oil and gas exploration, extraction and well stimulation activities.		

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		MM 4.8-9 For all operations subject to the Oil and Gas Conformity Review, the Applicant shall comply with the pipeline management plan, including inspection and maintenance requirements, as administered by the Geologic Energy Management Division pursuant to 14 California Code of Regulations 1774.		
Impact 4.8-2 Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment	Potentially significant	<p>Implement MM 4.8-1 through MM 4.8-9, as described above, and</p> <p>MM 4.8-10 The Applicant shall incorporate annual maintenance checks for leaks and corrosion that cause releases into current operations, maintenance, and inspection schedules as provided by the Geologic Energy Management Division pursuant to 14 California Code of Regulations Sections 1774.1 and 1774.2. The Applicant shall visually inspect all above-ground pipelines for leaks and corrosion at least once per year, comply with the pipeline testing requirements included therein, shall maintain records of such inspections and testing; and shall make inspection and testing records available to the County for review upon request.</p> <p>MM 4.8-11 As part of the Hazardous Materials Business Plan and the spill prevention, control, and Countermeasures Plan, the Applicant shall require annual worker training requirements to: increase awareness of the most common types of failures and methods to avoid mistakes, shall maintain records of employee training, and shall make such records available to the County for review upon request.</p> <p>MM 4.8-12 An Applicant who plans to perform cyclic steam injection activities above reservoir fracture pressures shall conduct such activities in accordance with the requirements set forth in the Geologic Energy Management Division site-specific Project Approval Letter for the injection project. The following requirements from a Project Approval Letter for an injection project are examples of the types of conditions that would be triggered if a surface expression were to occur, though such conditions may be modified by the Geologic Energy Management Division to reflect site-specific conditions and changing regulatory requirements.</p> <ul style="list-style-type: none">a. Cease cyclic steaming operations in accordance with the site-specific Project Approval Letter. Streaming can resume following the Geologic Energy Management Division specifications outlined in the Project Approval Letter.b. All new or reactivated surface expressions that discharge oil in a reportable quantity shall be reported as an oil spill to the California Emergency Management Agency at (800) 852-7550.c. Any measures to address surface expressions from the well and associated Project shall be reviewed by the Geologic Energy Management Division prior to initiating.d. Immediately control any water, steam, or oil flowing from a surface expression and contained. All discharged material shall be removed and disposed of in a manner approved by all state and local agencies.e. Cordon off and clearly mark all surface expressions to prevent inadvertent access.f. Conduct air sampling of any emissions associated to a recent surface expression in accordance to the local air board requirements to ensure a health hazard condition does not exist.g. Report immediately to the Geologic Energy Management Division all surface expressions within 300 feet of the Project site. If the surface expression continues to flow after five days, all wells within a 300-foot radius shall cease steaming until the surface expression ceases to flow. If the surface expression continues to flow, the damage will be evaluated at the Supervisor's discretion, as assigned by Section 3106 of the Public Resources Code and existing laws and regulations. <p>MM 4.8-13 The Applicant shall comply with the Geologic Energy Management Division requirements for assuring safe drilling and drill casing practices, well design, construction and well management requirements, blowout requirements, and all other provisions of 14 California Code of Regulations 1744 and other applicable Geologic Energy Management Division regulations. The Applicant shall also reduce the incidence of well control loss by following the practices described in Recommended Practice for Well Control Operations (American Petroleum Institute 2012).</p>	Less than significant	All Tiers

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		MM 4. 8-14 The Applicant shall report contamination caused by oil and gas activities, including previously unknown injection wells, of a reportable quantity of hazardous substances, as specified in the Code of Federal Regulations Title 40 and/or the California Code of Regulations Titles 22 and 23, which is discovered during Project construction activities and operations. Notification must be made within 24 hours of discovery to Kern County Public Health Environmental Health Division, Kern County Planning and Natural Resources Department and all State and Federal implementing regulatory agencies that have responsibility or oversight of the specific contamination conditions and activity. The Applicant shall remediate such contamination outside Tier 1 areas as required by the Kern County Environmental Health Division and the appropriate implementing regulatory agency.		
Impact 4.8-3 Emit Hazardous Emissions or Handle Hazardous or Acutely Hazardous Materials, Substances, or Waste within One-Quarter Mile of an Existing or Proposed School	Potentially significant	<p>Implement toxic air contaminant setback mitigation measures, as described in Section 4.3, Air Quality, and</p> <p>MM 4.8-15 The Applicant who intends to use acutely hazardous chemicals, including chemicals at or above the specified threshold quantities or a process which involves a Category 1 flammable gas or a flammable liquid with a flashpoint below 100 degrees Fahrenheit (37.8 degrees Celsius) on site in one location, in a quantity of 10,000 pounds (4535.9 kilograms) or more according to 8 California Code of Regulations Section 5189, Appendix A, within 0.25 mile from a school must prepare a Spill Prevention, Control, and Countermeasures Plan which includes details of the following measures as well as those contained in the regulations :</p> <ul style="list-style-type: none">a. Evaluate whether other alternative chemicals that are less hazardous could be used and provide an explanation on why other less hazardous chemicals cannot be used.b. Include specific details on the smallest quantity of necessary acutely hazardous materials that are needed for the specific activity and that will be stored on site.c. Notify the occupants of the school buildings when and where acutely hazardous materials would be used.d. Notify Kern County Fire Department about the details of the use of acutely hazardous materials (e.g., when, where, how much).e. Ensure that all employees who would contact the acutely hazardous materials are trained on the handling, transport, storage, and disposal of the materials.f. Ensure that all employees who would contact the acutely hazardous materials are trained and are provided the OSHA mandated personal protective equipment.g. Ensure that all employees who would contact the acutely hazardous materials are trained and have exercised on the Spill Prevention, Control, and Countermeasures Plan that addresses these chemicals. <p>MM 4.8-16 The Applicant shall not use any well stimulation fluid unless the applicant presents one of the following:</p> <ul style="list-style-type: none">1. Safety Data Sheet that accurately describes the physical and chemical properties of the well stimulation fluid; or2. Safety Data Sheets that accurately describe the physical and chemical properties of all chemical compounds in the well stimulation fluid; or3. Toxicological report prepared by a qualified laboratory and/or the fluid vendor confirming the environmental profile of the well stimulation fluid is known; or4. Results of an aquatic bioassay by a qualified laboratory confirming the environmental profile of the well stimulation fluid is known. <p>For purposes of this mitigation measure, the term “environmental profile” means the physical and chemical properties of a compound that determine its risk to human health and the environment. This mitigation measure shall be superseded by any list of approved well</p>	Less than significant	All Tiers

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		stimulation treatment fluids, chemicals or additives published by the State of California or by any applicable State of California regulation pertaining to chemical use in well stimulation treatment.		
Impact 4.8-4 Create a Hazard to the Public or the Environment as a Result of Being a Site that is Included on a List of Hazardous Materials Sites Compiled Pursuant to Government Code Section 65962.5	Potentially significant	Implement MM 4.8-14 , as described above, and MM 4.8-17 and MM 4.8-18 , as described under Impact 4.8-5.	Less than significant	All Tiers
Impact 4.8-5 For a Project Located within the Adopted Airport Land Use Compatibility Plan, Result in a Safety Hazard for People Residing or Working in the Area	Potentially significant	<p>MM 4.8-17 The Applicant shall determine whether any proposed construction or alteration meets requirements for notification of the Federal Aviation Administration. If a proposed construction or alteration is found to require notification, the Applicant shall notify the Federal Aviation Administration and request that the Federal Aviation Administration issue a Determination of No Hazard to Air Navigation. If the Federal Aviation Administration determines that the construction or alteration would result in a potential hazard to air navigation, the Applicant would be required to work with the Federal Aviation Administration to resolve any adverse effects or airport operations. The Applicant shall notify the Federal Aviation Administration and the nearest Airport, by completing and submitting Federal Aviation Administration Form 7460-1 if oil and gas related exploration, production, or associated development activities are planned that meet one or more of the following criteria:</p> <ul style="list-style-type: none">a. Any construction or alteration exceeding 200 feet above ground level.b. Any construction or alteration within 20,000 feet of all public use airports except Poso-kern Airport which exceeds a 100:1 surface from any point on the runway.c. Any construction or alteration within 10,000 feet of the Poso-Kern Airport which exceeds a 50:1 surface from any point on the runway.d. Any construction or alteration within 5,000 feet of a public use heliport which exceeds a 25:1 surface.e. When requested by the Federal Aviation Administration.f. Any construction or alteration located on a public use airport or heliport regardless of height or location. <p>MM 4.8-18 The Applicant shall determine the distance from the proposed operation to the nearest boundary of the Joint Service Restricted R-2508 Complex, using a map of this Complex provided by the County. The Applicant shall notify the Joint Service Restricted R2508 Complex representative identified by the County if oil and gas related exploration, production, or associated development activities are planned that meet one or more of the following criteria:</p> <ul style="list-style-type: none">a. Any structure within 75 miles of the R-2508 Complex that is greater than 50 feet tall.b. Any project within 50 miles of the R-2508 Complex that emit radio and communication frequencies.c. Any project that would create environmental impacts such as visibility or elevated obstructions within 25 miles of the R-2508 Complex. <p>MM 4.8-19 All oil and gas related development activities shall review the Kern County Airport Land Use Compatibility Plan for compliance with all applicable policies.</p>	Less than significant	All Tiers

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.8-6 Result in Safety Hazard for People Residing or Working in Project Area within Vicinity of a Private Airstrip	Less than significant	None required.	Less than significant	All Tiers
Impact 4.8-7 Impair Implementation of, or Physically Interfere with, an Adopted Emergency Response Plan or Emergency Evacuation Plan	Less than significant	None required.	Less than significant	All Tiers
Impact 4.8-8 Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires, Including Where Wildlands are Adjacent to Urbanized Areas or Where Residences are Intermixed with Wildlands	Less than significant	MM 4.8-20 The Applicant is required to implement the following measures: <ul style="list-style-type: none">a. Comply with Kern County Fire Codes.b. Maintain firefighting apparatus and supplies required by the Kern County Fire Department.c. Maintain of a list of all relevant fire-fighting authorities for each work sited. Have available equipment to extinguish incipient fires and or construction of a fire break, such as: chemical fire extinguishers, shovels, axes, chain saws, etc.e. Carry water or fire extinguishers and shovels in non-passenger vehicles in the field.f. Have and maintain a supply of fire extinguishers for welding, grinding, and brushing crews in compliance with the in compliance with CalOSHA regulations.g. Use available resources to protect individual safety and to contain any fire that occurs and notify local emergency response personnel.h. Remove any flammable wastes generated during oil and gas activities regularly.i. Store all flammable materials used in oil and gas activities away from ignition sources and in approved containers.j. Allow smoking only in designated smoking areas.k. Prohibit smoking where flammable products are present and when the fire hazard is high. Train personnel regarding potential fire hazards and their prevention.l. All internal combustion engines, stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order.m. Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. Said vehicle types shall maintain their factory-installed (type) muffler in good condition.n. Fire rules shall be posted on the Project bulletin board at the contractor's field office and areas visible to employees.o. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials.p. Personnel shall be trained in the practices of the Fire Safety Plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats.	Less than significant	All Tiers

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		MM 4.8-21 The Applicant should <u>shall</u> restrict the use of chainsaws, chippers, vegetation masticators, grinders, tractors, torches, and explosives at its locations, and ensure the sites where this equipment is used are equipped with portable or fixed fire extinguishers and/or a water tank, with hoses, fire rakes, and other tools to extinguish and or control incipient stage fires. The Worker Environmental Awareness Program shall include fire prevention and response training for workers using these tools.		
Impact 4.8-9 Generate Vectors or Have a Component that Includes Agricultural Waste Exceeding Adopted Qualitative Thresholds	Less than significant	Implement dust control and Valley Fever education and mask measures as described in Section 4.3, Air Quality, and MM 4.8-22 Applicants shall ensure that trash is stored in closed containers and removed from the site at regular intervals. Open containers shall be inverted and construction ditches shall not be allowed to accumulate water. Construction and maintenance operations shall not generate standing water. Naturally occurring depressions, drainages, or pools at the site shall not be drained or filled without a permit from any regulatory agency having jurisdiction over the resource location.	Less than significant	All Tiers
Impacts 4.8-10 Contribute to Cumulative Hazards and Hazardous Materials Impacts	Potentially significant	Implement MM 4.8-1 through MM 4.8-22 , as described above, and dust control and toxic air contaminant setback mitigation measure, as described in Section 4.3, Air Quality, risk reduction measures, as described in Section 4.6, Geology and Soils, and mitigation measures to maintain water quality, as described in Section 4.9, Hydrology and Water Quality.	Less than significant	All Tiers
Land Use and Planning				
Impact 4.10-1 Physically Divide an Established Community	Less than significant	Implement specified mitigation measures, including those that are applicable from Section 4.1, Aesthetics and Visual Resources, Section 4.3, Air Quality, Section 4.4 Biological Resources, Section 4.12, Noise, Section 4.15, Recreation, and Section 4.17, Utilities and Service Systems.	Less than significant	All Tiers
Impact 4.10-2 Conflict with Any Applicable Land Use Plan, Policy, or Regulation of an Agency with Jurisdiction Over the Project	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.10-3 Conflict with Any Applicable Habitat Conservation Plan or Natural Community Conservation Plan	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.10-4 Contribute to Cumulative Land Use Impacts	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Minerals				
Impact 4.11-1 Result in the Loss of Availability of a Known Mineral Resource that Would be of Value to the Region and the Residents of the State	Less than significant	No mitigation measures are required.	Less than significant	All Tiers

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.11-2 Result in the Loss of Availability of a Locally Important Mineral Resource Recovery Site Delineated on a Local General Plan, Specific Plan, or Other Land Use Plan	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.11-3 Contribute to Cumulative Mineral Resources Impacts	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Population and Housing				
Impact 4.13-1 Induce Substantial Population Growth in an Area, Either Directly or Indirectly	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.13-2 Displace Substantial Numbers of Existing Housing, Necessitating the Construction of Replacement Housing Elsewhere	No Impact	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.13-3 Displace Substantial Numbers of People, Necessitating the Construction of Replacement Housing Elsewhere	No impact	No mitigation measures are required.	Less than significant	All Tiers
Impact 4.13-4 Cumulative Impact on Population and Housing	Less than significant	No mitigation measures are required.	Less than significant	All Tiers
Public Services				
Impact 4.14-1 Result in Substantial Adverse Physical Impacts Associated with the Provision of New or Physically Altered Governmental Facilities, Need for New or Physically Altered Governmental Facilities, the Construction of which could Cause Significant Environmental Impacts, in Order to Maintain Acceptable Service Ratios, Response Times, or Other	Potentially significant	MM 4. 14-1 Applicant shall provide funding in the amount of \$ 425 per Oil and Gas Conformity Review permit issued for the Sheriff’s Rural Crime Unit. Funding shall be used for one Sergeant, two Senior Deputies (investigators), three Deputies, One Support Technician (clerical) and helicopter usage, <i>combinations of staffing required for use of the funding</i> based on the amount of funding <i>provided collected</i> by this permit mitigation fee. The Sheriff’s department shall annually report on the expenditure of funds for the Rural Crimes Unit, including incident reports and response times. If other sources of funding for the Rural Crimes Unit are secured, then the mitigation amount shall be adjusted to pay only the gap between actual costs and funding provided from other sources.	Less than significant	All Tiers

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Performance Objectives for Any of the Public Services, which Include: Fire Protection, Police Protection, Schools, Parks, and Other Public Facilities				
Impact 4.14-2 Contribute to Cumulative Public Service Impacts	Potentially significant	Implement MM 4.14-1 , as described above.	Less than significant	All Tiers
Recreation				
Impact 4.15-1 Increase the Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities Such That Substantial Physical Deterioration Would Occur or Be Accelerated	Less than significant	No mitigation measures required.	Less than significant	All Tiers
Impact 4.15-2 Include Recreational Facilities or Require Construction or Expansion of Recreational Facilities That Might Have an Adverse Physical Effect on the Environment	Less than significant	No mitigation measures required.	Less than significant	All Tiers
Impact 4.15-3 Cumulative Impact on Recreational Facilities	Less than significant	No mitigation measures required.	Less than significant	All Tiers
Transportation and Traffic				
Impact 4.16-1 Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System, Including, but Not Limited to, Intersections, Streets, Highways and Freeways, Pedestrian and Bicycle Paths, and Mass Transit	Potentially significant	MM 4.16-1 The Applicant shall pay a road maintenance mitigation fee of \$1,500 per permit for new wells to pay for roadway maintenance and related improvements to address wear and tear on roads caused by oil and gas industry traffic. The Kern County Public Works Department shall annually report on the expenditure of funds from the Oil and Gas Roadway Maintenance Fee. Expenditures from the fund shall be as determined by the Roads Commissioner, using as a reference the list of roadways identified in the Environmental Impact Report as being used for traffic by the oil and gas industry. If Kern County secures funding from a sales tax dedicated to transportation funding, then the amount of the traffic mitigation fee shall be reevaluated at the time the County becomes a self-help county. The first 100 permits issued in a calendar year to certified small producers under the Small Producers Program included in the Project shall not pay this mitigation fee based on their very low proportionate roadway use (100 permits are estimated to generally be less than 5% of the permits issued annually). MM 4.16-2 Applicants who are using an arterial or collector, or Caltrans route, for access to a construction site, shall consult with the Kern County Public Works Department. The Kern County Public Works Department based on established engineering safety standards and current traffic generation data will determine if a Construction Traffic Control Plan is required based on the timing and volume of larger vehicle rigs and the volume of traffic to address public safety and congestion management. If a Plan is required, the Applicant shall prepare and submit a Construction Traffic Control Plan to the Kern County Public Works Department and to the California Department of Transportation (District 9 office) for approval. The Construction Traffic Control Plan must be prepared in accordance with both the	Less than significant	All Tiers

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
		California Department of Transportation Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook and shall include, but not be limited to, the following issues <ul style="list-style-type: none">a. Timing of deliveries or heavy equipment and building materials.b. Placing temporary signage, lighting and traffic control devices as necessary to indicate the presence of heavy vehicles and construction traffic.c. Specifying construction work hours and arrival/departure times outside peak traffic periods.d. Ensuring access for emergency vehicles to the project site.e. Any temporary closure of travel lanes or disruptions to street segments and intersections during sell development.f. Maintaining access to adjacent property.		
Impact 4.16-2 Conflict with an Applicable Congestion Management Program, Including, but Not Limited to Level of Service Standards And Travel Demand Measures, or Other Standards Established by the County Congestion Management Agency for Designated Roads or Highways -Metropolitan Bakersfield General Plan Level of Service “C” -Kern County General Plan Level of Service “D” -Caltrans Endeavors to Maintain a Target Level of Service at the Transition between Level of Service “C” and Level of Service “D”	Less than significant	Implement MM 4.16-2 , as described above.	Less than significant after mitigation	All Tiers
Impact 4.16-3 Result in a Change in Air Traffic Patterns, including Either an Increase in Traffic Levels or a Change in Location that Results in Substantial Safety Risks	Potentially significant	Implement airport-related mitigation measures, as described in Section 4.8, Hazards and Hazardous Materials.	Less than significant after mitigation	All Tiers
Impact 4.16-4 Substantially Increase Hazards due to a Design Feature (e.g., Sharp Curves or Dangerous Intersections) or Incompatible Uses	Potentially significant	Implement MM 4.16-2 , as described above.	Less than significant after mitigation	All Tiers

Table 7-2: 2015 FEIR (and 2020 Clarified) Impacts, Mitigation Measures, and Level of Impacts after Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measure(s)	Level of Significance after Mitigation	Applicable Tier
Impact 4.16-5 Result in Inadequate Emergency Access	Potentially significant	Implement MM 4.16-2 , as described above.	Less than significant after mitigation	All Tiers
Impact 4.16-6 Conflict with Adopted Policies, Plans, or Programs regarding Public Transit, Bicycle, or Pedestrian Facilities, or Otherwise Decrease the Performance or Safety of Such Facilities	Potentially significant	Implement MM 4.16-2 , as described above.	Less than significant after mitigation	All Tiers
Impact 4.16-7 Cumulative Impacts on Transportation and Traffic	Potentially significant	Implementation of MM 4.16-1 and MM 4.16-2 , as described above.	Less than significant after mitigation	All Tiers

7.2 Response to Comments – Circulation (August 2020)

7.2.1 Global Responses

1: Beyond the Scope of the SREIR

Thank you for your comment and participation in the public review of the Project and the environmental document. Some comments submitted identified issues that fall outside the scope of the limited CEQA review required by the Court of Appeal’s decision. These issues are not required to be addressed in the SREIR, but references to pertinent information in the 2015 FEIR and 2018 SEIR have been provided with the circulated documents. While the SREIR is not required to reopen these issues, all the mitigation measures for all resource areas will be included in any recommended decision for reconsideration of the Zoning Ordinance revisions for local oil and gas permitting.

The Kern County Board of Supervisors unanimously certified the 2015 FEIR and approved the Project on November 9, 2015. On December 9 and 10, 2015, two lawsuits were filed in the Kern County Superior Court alleging that various substantive sections of the 2015 FEIR failed to comply with CEQA. On April 20, 2018, the Superior Court issued a Judgment upholding the 2015 FEIR against all but two of the claims brought in the lawsuits: (1) impacts on rangeland/grazing lands and (2) road paving as an air emissions mitigation measure. Judgment in Case Nos. BCV-15-101666-EB and BCV-15-101679-EB, *Vaquero Energy, Inc. v. County of Kern* (2018), Case No. BCV-15-101645-EB (Kern Cnty. Super. Ct. Apr. 20, 2018). These topics were addressed in a SEIR certified by the Board of Supervisors on December 11, 2018, as directed by the Judgment. No challenges were brought against the 2018 SEIR.

The petitioners appealed the trial court’s decision in both lawsuits on the 2015 FEIR, and, on February 25, 2020, the Court of Appeal issued a decision upholding the 2015 FEIR against all of the claims raised on appeal except for “five areas in which the EIR did not comply with CEQA: (1) mitigation of water supply impacts; (2) impacts from PM2.5 emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well Health Risk Assessment for public review and comment.” (*King & Gardiner Farms, LLC v. County of Kern* (2020) Case No. F077656, Slip Opinion, (Cal. Ct. App. 5th Dist. Feb. 25, 2020), at p. 140.)

The Court of Appeal’s decision directed the County:

in the event it decides to present the Ordinance (in its present or a modified form) to the Board for reapproval to correct the CEQA violations identified in this opinion by preparing a revised EIR correcting the CEQA violations relating to (a) water supply impacts and mitigation measures, (b) PM2.5 emissions impacts and mitigation measures, (c) agricultural land impacts and mitigation measures, and (d) the analysis noise impacts; circulating the revised EIR and the Multi-Well Health Risk Assessment for public review

and comment; and preparing and publishing responses to the comments received before certifying the revised EIR and reapproving the Ordinance.” (Slip Opinion, p. 149.)

The Court of Appeal did not require the County to revise or reopen any other issues in the 2015 FEIR. On June 12, 2020, the Superior Court issued a Modified Judgment consistent with the Court of Appeal’s decision. Modified Judgment in Case Nos. BCV-15-101666-EB and BCV-15-101679-EB, *Vaquero Energy, Inc. v. County of Kern* (2018), Case No. BCV-15-101645-EB (Kern Cnty. Super. Ct. June 12, 2020). For this Project, staff are proposing to present the Ordinance with changes to the public, Planning Commission, and Board of Supervisors for reconsideration for approval; therefore, the court’s direction has been followed in this SREIR.

The Court of Appeal’s decision and the Modified Judgment are consistent with controlling caselaw. Where a lead agency is required to correct specific defects in an EIR before recertification, the agency need not start anew, but need only correct the deficiencies specifically identified by the court. For example, in *Lotus v. Department of Transportation* (2014) 223 Cal.App.4th, at p. 645, the Fifth District Court of Appeal found that an EIR prepared by the California Department of Transportation (Caltrans) for a highway construction project failed to adequately analyze certain impacts to biological resources. The court concluded that “Caltrans is not required to start the EIR process anew. Caltrans need only correct the deficiencies we have identified before considering the recertification of the EIR.” *Lotus v. Department of Transportation* (2014) 223 Cal.App.4th, at p. 658. See also *East Sacramento Partnerships for a Livable City v. City of Sacramento* (2016) 5 Cal.App.5th, at p. 281, 303 (city need only correct specific deficiency in traffic impacts analysis identified by court before considering recertification of EIR); *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th, at p. 1099, 1113 (agency need only correct deficiency in water resources analysis identified by court prior to recertification; agency not required to “start the EIR process anew”). Additionally, CEQA section 21168.9(b), which governs judicial remedies for CEQA violations, requires courts to limit their orders to only “those mandates which are necessary to achieve compliance with [CEQA] and only those *specific project activities* in noncompliance with [CEQA].” (Emphasis added.)

The Court of Appeal’s decision and the Modified Judgment are also consistent with the doctrine of *res judicata*, which prohibits re-litigation of CEQA claims that were (or could have been) previously adjudicated and holds that a lead agency is not required to revisit CEQA issues that were decided in favor of the lead agency. For example, in *Ione Valley Land, Air, & Water Defense Alliance, LLC v. County of Amador* (2019) 33 Cal.App.5th, at p. 165, a petitioner challenged the analysis of traffic, water supply, biological resources, and air pollution impacts in an EIR for a quarry project. The petitioner prevailed only as to traffic impacts. The County then prepared a revised and recirculated EIR pertaining only to traffic issues, which the petitioner challenged on non-traffic grounds, including water supply, biological resources, air pollution, and mitigation measures. The Third District Court of Appeal found that *res judicata* barred all challenges to the recirculated EIR not related to traffic “because the remaining issues were litigated and resolved, or could have been litigated and resolved, in connection with the first petition, and the writ of mandate did not require the County to revisit issues other than traffic impacts.” *Ione Valley Land, Air, & Water Defense Alliance, LLC v. County of Amador* (2019) 33 Cal.App.5th, at p. 170. Additionally, the court rejected the petitioner’s argument that the County’s recertification of the revised EIR

constituted a “new” certification allowing petitioners to challenge all issues in the EIR: “[Petitioner] claims that Public Resources Code section 21168.9 allows for partial decertification of an EIR, and, therefore, the trial court’s order directing full decertification of the EIR allowed new challenges to parts of the EIR that had already been upheld by the trial court. This argument fails because whether the EIR has been decertified does not alter the fact that the sufficiency of a component of the EIR has been litigated and resolved.” *Ione Valley Land, Air, & Water Defense Alliance, LLC v. County of Amador* (2019) 33 Cal.App.5th, at p. 172. See also *Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal.App.4th, at p. 455, 481 (challenges to revised EIR’s project description and land use consistency finding barred by *res judicata* because those challenges could have been asserted in prior proceeding on original EIR); *Federation of Hillside & Canyon Assns. v. City of Los Angeles* (2004) 126 Cal.App.4th, at p. 1180, 1202–1204 (barring challenges to EIR on issues previously decided in agency’s favor, and issues that could have been raised in prior proceeding); *Atwell v. City of Rohnert Park* (2018) 27 Cal.App.5th, at p. 692, 698–702 (*res judicata* barred challenge to city’s general plan consistency finding because this claim was raised in prior action).

In this situation all CEQA concerns pertaining to all impact areas besides those specified above were resolved in favor of the County. To the extent that comments raise issues beyond the five topic areas identified by the Court of Appeal, those comments are outside the scope of the SREIR and are not required to be further discussed or analyzed in this SREIR. For understanding of the complete Project, references to pertinent information in the 2015 FEIR and 2018 SEIR have been provided with the circulated documents in Volumes 3 through 8.

2: Ministeriality

Some comments state that CEQA prevents the County from adopting a ministerial permitting scheme for specified oil and gas activities. This is inaccurate.

In *Protecting Our Water and Environmental Resources v. County of Stanislaus* (2020) Case No. S251709, 10 Cal.5th 479 (*POWER*), the California Supreme Court considered whether a county-level permitting ordinance for water wells always authorized ministerial permits, or always required discretionary review. A state standard, incorporated into the county ordinance, required that wells be an “adequate” distance from sources of contamination. The state standard incorporated certain distances from specific sources that would ordinarily be considered “adequate.” However, the state standard clarified that “[n]o set separate distance is adequate and reasonable for all conditions,” and that the “[d]etermination of the safe separation distance for individual wells requires detailed evaluation of existing and future site conditions.” The court concluded that this standard provided the Stanislaus County officials with sufficient discretion to shape the project to avoid environmental impacts. The circumstances of the individual permit determined whether or not each permit was subject to discretionary decisionmaking, and subject to CEQA.

Unlike the officials in *POWER*, Kern County staff have no authority to shape any of the Project activities in a manner that would avoid environmental impacts. The determination that the Conformity Review and Minor Activity Review permits are ministerial is therefore appropriate and fully complies with the decision.

Per CEQA Guidelines § 15369, “ministerial” describes:

[A] governmental decision involving little or no personal judgment by the official as to the wisdom or manner of carrying out the project. The public official merely applies the law to the facts as presented but uses no special discretion or judgment in reaching a decision. A ministerial decision involves only the use of fixed standards or objective measurements, and the public official cannot use personal, subjective judgment in deciding whether or how the project should be carried out.

A ministerial permit is one that can be “legally compelled without substantial modification or change.” *Friends of Westwood, Inc. v. City of Los Angeles* (1987) 191 Cal.App.3d 259, 269. By contrast, a “[d]iscretionary project” means a project which requires the exercise of judgment or deliberation . . . as distinguished from situations where the public agency or body merely has to determine whether there has been conformity with applicable statutes, ordinances, or regulations.” CEQA Guidelines § 15357. While not determinative, a municipality’s classification of a certain approval process as ministerial is entitled to great weight. *Friends of Davis v. City of Davis* (2000) 83 Cal.App.4th 1004, 1015.

As outlined in the 2015 FEIR, the process created a ministerial permitting program in which mitigation measures and mandatory performance standards apply to all oil and gas developments within the scope of the Project. The permitting activities are reviewed by staff permitting technicians only to determine conformity with applicable mitigation measures and standards. The process does not involve an exercise of judgment or deliberation. Since the Project’s Conformity Review process involves only the use of fixed standards and objective measurements, it has been determined that such Conformity Review permits are ministerial in nature.

Revisions to the Ordinance are proposed in order to clarify the nature of staff review and permitting authority, per *POWER*. Under the Minor Activity and Conformity Review permits, the applicant must accept all applicable provisions of the Mitigation, Monitoring, and Reporting Program as a condition of approval. In reviewing the application, consistency with “fixed and objective” standards is verified by County staff. Unlike the regime at issue in *POWER*, the staff may not exercise their judgment in a “detailed evaluation of . . . site conditions” or evaluate the “[m]any variables” that might affect the adequacy of the applicable mitigation. Instead, in determining whether to issue the permit, staff apply fixed and objective standards from the Ordinance without exercise of personal judgment, based on the site plan submitted and the Mitigation, Monitoring, and Reporting Program. No comments have identified any provisions in the Ordinance that would authorize any staff official to exercise personal or subjective judgment over whether or under what conditions to issue a Minor Activity or Conformity Review permit.

Some comments state that ministerial determination by the County is impermissible based on language in the mitigation measures, rather than language in the Ordinance itself. While *POWER* is clear that a permitting regime may not be construed as ministerial when the ordinance itself confers meaningful discretion, the courts have never held that subsequent and otherwise ministerial approvals are rendered discretionary and subject to CEQA based solely on the language of mitigation measures in the underlying environmental review. It is the power the agency exercises over project approval, not over compliance with mitigation measures, that renders a project

approval discretionary. See *Health First v. March Joint Powers Authority* (2009) 174 Cal.App.4th 1135, 1145–46; *Sierra Club v. Napa Cnty. Bd. of Supervisors* (2012) 205 Cal.App.4th 162, 178; *Sierra Club v. Cnty. of Sonoma* (2017) 11 Cal.App.5th 11, 19; and *Venice Coal. to Preserve Unique Cmty. Character v. City of Los Angeles* (2019) 31 Cal.App.5th 42, 50.

In response to *POWER*, this Ordinance has been clarified to specify that permit issuance is contingent only on compliance with fixed and objective standards, rather than the personal judgment or discretion of County staff. If an applicant is not willing to agree to all provisions of the MMRP as a condition of permit issuance, the applicant must apply for a variance—a discretionary determination requiring judgment—in which case the County will comply with all requirements of the CEQA applicable to non-ministerial projects before granting any requested variance from the Ordinance and obtaining the required permit. After permit issuance, compliance with mitigation measures is ensured through the agency’s enforcement process, including complaints, inspections, and abatement actions.

3: Public Process

Comments have been submitted regarding the adequacy of public review and opportunities for public participation during the preparation of the SREIR, particularly in light of the novel COVID-19 pandemic. This global response addresses those concerns and explains that the public was provided ample opportunity to review and submit public comments on the SREIR (August 2020) and SREIR (October 2020) in light of the COVID-19 pandemic.

Procedural Requirements for Supplemental EIRs under CEQA

Under CEQA, a supplemental EIR augments a previous EIR through limited changes or additions to make the previous EIR adequate. 14 Cal. Code Regs. § 15163. Neither CEQA nor the CEQA Guidelines require lead agencies to provide public notice or the opportunity to comment on the determination that a supplemental EIR is required. Pub. Res. Code § 21166; *A Local & Reg'l Monitor v. City of Los Angeles* (1993) 12 Cal.App.4th 1773, 1804. However, once a lead agency determines that a supplemental EIR is required, it must provide the same notice and public review process as was done for the initial environmental document. 14 Cal. Code Regs. § 15162(d).

Governor’s Executive Orders Regarding Public Process during COVID-19

In response to COVID-19, Governor Newsom issued two Executive Orders (EOs) that modified how local agencies conduct public hearings during this global pandemic, as well as how public agencies notice filings under CEQA. First, on March 17, 2020, the Governor issued EO N-29-20, which relaxes requirements under the Ralph M. Brown Act (Brown Act), Gov. Code §§ 54950 et seq., related to public hearings. To respect state and local public health orders and social distancing recommendations, EO N-29-20 allows local agencies to conduct public meetings via videoconference, teleconference, or other electronic methods. EO N-29-20 states that “[a] local legislative body or state body that holds a meeting via teleconferencing and allows members of the public to observe and address the meeting telephonically or otherwise electronically ... shall have satisfied any requirement that the body allow members of the public to attend the meeting and offer

public comment.” EO N-29-20, ¶ 3. Second, on April 23, 2020, Governor Newsom issued EO N-54-20, which suspended certain public notice requirements under CEQA. Pursuant to EO N-54-20, between April 23 and June 21, 2020, Notices of Preparation (NOPs) were not required to be filed, posted, and made publicly available at the County Clerk’s Office.

Public Participation and Notices for Draft SREIR (August 2020 and October 2020)

On April 29, 2020, the Kern County Planning and Natural Resources Department (Department) issued an NOP for the Draft SREIR. A copy of the NOP is attached as Appendix A of the SREIR (October 2020). The NOP was posted with the Kern County Clerk, as well as with the State Clearinghouse. SCH # 2013081079. The NOP stated that the Draft SREIR could be reviewed online (and provided a web URL link) and that comments on the NOP could be submitted via email by May 29, 2020. The NOP also explained that the Department would be hosting a virtual scoping meeting on May 13, 2020, and that the public could submit scoping comments at that scoping meeting. The NOP complied with all applicable requirements under CEQA, the CEQA Guidelines, and EO N-54-20.

On May 13, 2020, pursuant to CEQA Guidelines § 15082(c)(1), a duly noticed scoping meeting on the SREIR (August 2020) was held virtually. Participants were given the opportunity to submit scoping comments on the SREIR (August 2020) via the teleconference platform’s chat function. While that virtual scoping meeting did not allow for verbal comments in any language, it did provide a phone line to call for a live stream Spanish translation, as well as closed captioning to translate into any language selected. The summary of the scoping meeting is archived and attached as Appendix A to the SREIR. See SREIR (October 2020), Vol. 1, Appendix A.

On August 3, 2020, the SREIR (August 2020) was released for public review and comment and made available for review online and at the Department’s offices by making an appointment and agreeing to follow all COVID-19 protocols. As required by CEQA, it was filed with the State Clearinghouse and the Kern County Clerk for posting. The County accepted public comments on the SREIR (August 2020) during the 45-day public review period, which concluded on September 16, 2020. Public comments on the SREIR (August 2020) were accepted through email, voicemail, and U.S. mail. Public comments accepted throughout the entire public process must be considered by both the County Planning Commission and Board of Supervisors. All comments are carefully reviewed and considered when determining staff recommendations, and appropriate written responses are provided in the staff reports. All are provided to the decision makers for their consideration. In total, 23 written comments from individuals or agencies/organizations were submitted on the SREIR (August 2020) (13 were submitted during the public comment period, and 10 were submitted at the August 17, 2020 public workshop).

On August 17, 2020, the Department hosted a virtual public briefing workshop on the SREIR (August 2020) to provide an overview of the Draft SREIR and an additional opportunity for public comment. Although public workshops are not required under CEQA nor public meetings subject to the Brown Act, the August 17, 2020, public workshop was conducted in accordance with the standards under EO N-29-20 and recent recommendations from the Governor’s Office of Planning and Research (OPR). See OPR, *CEQA: the California Environmental Quality Act*, available at

<https://opr.ca.gov/ceqa> (last accessed, Nov. 19, 2020 (“[f]or meetings not specifically governed by open meetings laws, such as public scoping meetings, [OPR] encourage[s] lead agencies to use all of the technology tools available to them to engage as many members of the public as possible.”)). Participants in the August 17, 2020, public workshop were provided the opportunity to submit written comments via the teleconference platform’s chat function, which were then considered by staff and provided written responses at Responses to Comments 0014-1 to 0023-1. Although the public workshop did not accommodate oral comments in any language, closed captioning and live translation services were provided. A recording of the August 17, 2020, public workshop is available on the Kern County Planning and Natural Resources website at: https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/OilGas_SREIR_081720Workshop_Video.mp4.

A second circulation of the SREIR was prepared in October to incorporate public and agency comments on the SREIR (August 2020). A 45-day public comment period on the SREIR (October 2020) was provided from October 30, 2020, to December 14, 2020. Similar to the August 17, 2020, public workshop, a public workshop on the SREIR (October 2020) was held virtually on November 10, 2020, to provide an overview of updates in the SREIR (October 2020), as well as additional opportunity for public comment. Participants were provided the opportunity to submit written comments via the teleconference platform’s chat function, which were then considered by staff. Although the public workshop did not accommodate oral comments in any language, closed captioning and live translation services were provided. In total, 51 written comments from individuals or agencies/organizations were submitted on the SREIR (October 2020) (49 were submitted during the public comment period, and two were submitted at the November 10, 2020, public workshop). A full recording of the November 10, 2020, public workshop is available on the Kern County Planning and Natural Resources website at https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/OilGas_SREIR_111020Workshop_Video.mp4.

Comments submitted at the August 17, 2020, public workshop are provided in Section 7.2.2, and comments submitted at the November 10, 2020, public workshop are provided in Section 7.3.2, along with appropriate responses.

A public hearing to consider the proposed zoning ordinance and the SREIR is scheduled for February 11, 2021, at which time the Planning Commission will receive comments and consider adopting a recommendation for the Board of Supervisors on the zoning ordinance and SREIR. A public hearing on the proposed Ordinance and SREIR at the Board of Supervisors will be scheduled in March 2021. Public comments can be made throughout this process, up until the Board of Supervisors’ vote on the Ordinance and SREIR. Like the May 13, 2020, scoping meeting and August 17, 2020, and November 10, 2020, public workshops, all Planning Commission and Board of Supervisors hearings on the Ordinance and SREIR will be conducted virtually via teleconference technology, in compliance with EO N-29-20. Instructions on how to participate will be posted online and provided to interested parties in advance of the hearings. Both oral and written comments will be accepted at the Planning Commission and Board of Supervisors hearings, and Spanish translation will be provided for both the listeners and commenters.

The procedural steps discussed above demonstrate that all legal requirements for public notice and participation under CEQA have been adhered to during the preparation of the SREIR (August 2020) and SREIR (October 2020). This process has ensured that responsible and trustee agencies, stakeholders, organizations, and local residents have had an adequate opportunity to (1) review and submit comments during the 45-day public comment period on the SREIR (August 2020) and SREIR (October 2020), (2) participate and submit comments at one virtual scoping meeting and two virtual public workshops, and (3) be fully informed of the County's decisionmaking process under CEQA. The public participation process for the SREIR went beyond what is required by law to ensure that the public had an adequate opportunity to understand and participate in the SREIR preparation process during the COVID-19 pandemic.

4: Environmental Justice

Some comments assert that the Draft SREIR failed to adequately take into account environmental justice issues. A specific analysis of environmental justice is not required by CEQA.

State law defines "environmental justice" as "the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." California Government Code § 65040.12(e). There are no provisions in the CEQA statute or the CEQA Guidelines requiring a separate analysis of impacts on minority and low-income communities, either in project-specific or in cumulative impact analysis. See *Friends of Davis v. City of Davis* (2000) 83 Cal.App.4th at p. 1004, 1019 (under CEQA, the question is not whether a project will affect particular persons, but whether it will affect the environment of persons in general), CEQA Guidelines § 15064(e) (economic and social changes resulting from a project shall not be treated as significant effects on the environment). Further, such a requirement cannot be inferred when it is not expressly stated. See CEQA (Pub. Res. Code) § 21083.1, which provides that CEQA and the CEQA Guidelines "shall not [be] interpret[ed] in a manner which imposes procedural or substantive requirements beyond those explicitly stated" in the statute or CEQA Guidelines.

Consistent with CEQA, the SREIR analyzes the potential impacts of the proposed Project on the aspects of the environment included within the SREIR scope. (See Global Response [GR] 1 – Comments Beyond the Scope of the SREIR.) CEQA defines the environment as the "physical conditions that exist within the area affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance." CEQA Guidelines § 15360. Social and economic impacts are not considered environmental effects. CEQA Guidelines § 15360.

Economic or social factors may contribute to the environmental impacts of a project or may contribute to determinations of the significance of impacts; however, they do not constitute impacts in themselves. CEQA Guidelines §§ 15064(e), 15131(b), 15382; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal. App. 4th, at p. 1184, 1213 (economic harm to small businesses from a "big box" store was not an environmental impact, but resulting "urban blight" would be a physical change to the environment and an impact under CEQA). Except to the extent

that social effects lead to physical environmental consequences, such as urban blight, these effects are outside of CEQA's scope and are not a necessary part of an environmental evaluation.

Although a specific environmental justice analysis is not required under CEQA, many issues commonly associated with environmental justice generally are addressed in the CEQA analysis of impacts to sensitive and vulnerable populations in all communities, of all races, cultures, and income levels. For example, a lead agency must adopt a mandatory finding of significance where the effects of a project on the physical environment will cause substantial adverse effects on human beings. Accordingly, the 2015 EIR and SREIR evaluated impacts on the physical environment, including Project and cumulative impacts affecting human beings and human health for all communities. See also CEQA Guidelines, Appendix G, § XI(a), which identifies “physically divid[ing] an established community” as a potentially significant impact, regardless of the demographics and income level of the community.

The 2015 FEIR and the SREIR evaluated potential impacts to sensitive populations and worker receptors that could be affected by future oil and gas activities, including impacts related to aesthetics (Section 4.1), air quality (Section 4.3), hazards (Section 4.8) and noise (Section 4.13). Sensitive populations and land uses considered in the analyses include residences and residential communities, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Sensitive individuals considered in the analyses include children and the elderly, and worker receptors include employees and locations where people work. The evaluations applied health-based standards—for example, in the analysis of air quality impacts to vulnerable populations, including children, seniors, and others.

The mitigation measures identified in the 2015 FEIR and the SREIR ensure that the implementation of the Project takes into consideration the fair treatment of all sensitive receptors, irrespective of race, culture, or income, and that the burdens of project-related impacts, including pollution, will not be focused on sensitive populations and communities that may be in proximity.

Government Code § 65040.12(e), which defines “environmental justice,” also directs the Governor’s Office of Planning and Research to coordinate state environmental justice programs and to develop guidelines for cities and counties to address environmental justice in their respective general plans. However, nowhere does the statute require a separate analysis of environmental justice as part of the CEQA process. Moreover, when section 65040.12 was originally enacted by the State Legislature in 1999 in Senate Bill 115, initial committee versions of the bill provided for the Office of Planning and Research (OPR) to develop changes to the CEQA Guidelines specifically to identify and mitigate environmental effects on minority and low-income populations. However, in the September 3, 1999, Assembly amendments to Senate Bill 115, the CEQA language was deleted, identified with strikethrough text as follows:

. . . the Office of Planning and Research shall recommend proposed changes in, and the Secretary of Resources shall certify and adopt revisions to, the [CEQA] guidelines to provide for the identification and mitigation by public agencies of disproportionately high and adverse environmental effects of projects on minority populations and low-income populations and to promote effective public participation by those affected populations.

The Legislative Counsel's digest from the September 3, 1999, amendments summarizes that and other deletions from the bill with strikethrough text, as follows:

This bill would require, by July 1, 2001, the office to recommend proposed changes in, and the secretary to certify and adopt revisions to, the [CEQA] guidelines to provide for the identification and mitigation by public agencies of disproportionately high and adverse environmental effects of projects on minority populations and low-income populations and to promote effective public participation by those affected populations. The bill would require the office, by July 1, 2000, in consultation with other state agencies, to review its available data bases and other available data bases and information to identify affected communities and populations. The bill would require the office and the secretary to coordinate their efforts and to share information with the Council on Environmental Quality and the United States Environmental Protection Agency in implementing those provisions, as specified.

The accompanying Assembly Floor Analysis of the bill (Sept. 3, 1999) explained:

This bill establishes OPR as the state's lead agency for implementation of environmental justice programs. Earlier versions of this bill enacted a more detailed program intended to track the key requirements of the federal environmental justice policy and programs. The bill was amended in Assembly Appropriations to delete these provisions.

Thus, the Legislature specifically considered requiring a separate environmental justice analysis based on minority and low-income status in CEQA documents, but it elected not to do so.

Most recently, Senate Bill 950 (2019-2020 Reg. Sess.), which would have added “[i]t is the intent of the Legislature that all public agencies should give consideration to environmental justice” to the Legislative findings and intent of CEQA § 21000, and would have required the OPR to develop requirements for translation of certain CEQA notices and other documents into non-English languages to “promote environmental justice goals,” failed passage in the Senate Environmental Quality Committee in May 2020. In addition, Senate Bill 1070 would have added detailed requirements to the Environmental Justice elements of city and county General Plans, including provisions for translating notices and documents, but did not pass.

Finally, it should be noted that California Government Code § 11135 generally prohibits recipients of state financial assistance, including the County, from conducting programs or activities in a manner that results in disparate impacts based on race and other factors. However, section 11135 does not require a prospective disparate impact or environmental justice analysis.

5: Setback and Mitigation Measure Trigger Distances

The Ordinance establishes mandatory setback distances for new oil and gas wells. Two sections of the SREIR (Section 4.3, Air Quality and Section 4.12, Noise) also establish mitigation trigger distances that are specific to certain types of well activities and locations. Several comments state that there are inconsistencies between the mandatory setback distances in the Ordinance and the mitigation measure trigger distances in MM 4.3-5 (air quality), MM 4.12-1 (noise), and MM 4.12-2 (noise) that apply in prescribed circumstances. A comprehensive table showing mandatory

setback distances and mitigation trigger distances for these mitigation measures is provided as Table 4.12-15 of the SREIR. See SREIR (October 2020), Vol 1, at 4.12-44. For ease of reference, these setback and mitigation measure trigger distance requirements are summarized below.

Section 19.98.060(A) of the Ordinance prescribes mandatory setback distances applicable to new oil and gas wells. No deviations from these distances are authorized under the Ordinance, even if, for example, equipment with a lower noise profile or with fewer emissions is used for a particular well. These mandatory setbacks are as follows:

- One hundred (100) feet from:
 - Any public Major or Secondary highway
 - Any building not necessary to the operation of the well
 - Any building used for commercial purposes that is not used for oil and gas operations
- Two hundred and ten (210) feet from the legal parcel property line of any property that includes a sensitive receptor. Sensitive receptors include:
 - A residence (single or multi-family dwelling unit)
 - A church
 - An institution
 - A hospital
 - A place of public assembly, which is defined as a legally permitted place where 100 or more people gather together in a building or structure for the purpose of amusement, entertainment, or retail sales.
- Three hundred (300) feet from the legal parcel property line of any property that contains a permitted public or private school. Residences used for homeschooling are subject to the residential setback distance of 210 feet.

Because setback distances are measured from the legal parcel property line, and residences and other sensitive uses are generally located a greater distance from the property line, the actual distance between a well and a sensitive use structure is likely to exceed these minimum setback distances. Any applicant seeking to locate a new well within the prescribed setback distance is not eligible for Site Plan review and must instead seek a discretionary Conditional Use Permit, which triggers further environmental review under CEQA, as well as public notice and hearing requirements. See Kern County Zoning Ordinance section 19.98.085; see also Kern County Zoning Ordinance section 19.104 and MM 4.12-2(1), SREIR (October 2020), Vol. 1, at 4.12-54–56.

The Ordinance also requires compliance with all applicable mitigation measures. See Kern County Zoning Ordinance section 19.98.060(D). MM 4.3-5 establishes distances that trigger mitigation obligations to protect occupants of sensitive use properties from exposure to potentially harmful concentrations of toxic air contaminants (TACs). This mitigation trigger distance was established based on multiple Health Risk Assessment (HRA) studies included in Appendix B to the SREIR. These studies demonstrate that the highest health risk occurs during well drilling activities. To

avoid adverse health risks for sensitive receptors, MM 4.3-5 requires additional measures to reduce TAC exposure to less than significant levels. MM 4.3-5 requires:

- Disclosure on the Site Vicinity Figure (which is required to be submitted as part of the Site Plan Review process pursuant to section 19.98.080(E) of the Ordinance) of any sensitive use located within 4,000 feet of a proposed new well, or other ancillary facility or equipment (other than pipelines, which do not require multi-day construction equipment operations in a single location). The well site and nearest property line of a sensitive receptor shall be permitted using both maps and coordinates on the map.
- If any sensitive uses are located within 4,000 feet of a proposed new well, then additional information must be provided showing the distance from the closest edge of the well pad to the property line of the nearest sensitive receptor and either (1) a minimum setback distance is required for deeper wells, or (2) (a) the applicant is required to propose and implement additional risk minimization measures (options for which are listed in the mitigation measure) to reduce health risk to less than significant levels, (b) the applicant is required to prepare an HRA that is specific to that well and the applicant's proposed risk minimization, and (c) the expert agency on HRAs (the San Joaquin Valley Air Pollution Control District) must provide written confirmation to the County that the applicant's proposed risk minimization measures are effective in reducing the level of risk to less than significant levels.
- The table showing trigger distances based on the HRAs is included in full in MM 4.3-5(b) and reprinted below for ease of reference:

Well Depth (Feet)	Minimum Mitigation Trigger Distance from Well Site to Adjacent Property Line of an Existing Sensitive Receptor (Feet)
Western Subarea	
10,000	367
5,000	116
2,000	NA
Central Subarea	
10,000	367
5,000	116
2,000	NA
Eastern Subarea	
10,000	296
5,000	NA
2,000	NA

The trigger distances in MM 4.3-5 apply in addition to the mandatory setback distances in the Ordinance. As shown in the table above, only wells drilled to 10,000 feet require mitigation beyond the 210-foot setback distances (sensitive uses generally) and 300-foot setback distance (school sensitive uses) that apply under the Ordinance. "NA" means that no mitigation is required to mitigate health risks from these well drilling operations for shallower wells.

The SREIR (August 2020) evaluated the Project's operational and construction noise in relation to compliance with the County's adopted noise ordinance, and in relation to ambient noise levels. This analysis included impacts from various different types of construction and operation activities and equipment and from operations that are diesel-powered or electric-powered (which is quieter). The SREIR (October 2020) updated this analysis to include contours—called mitigation trigger distances—that are based on allowable increases above the lowest measured ambient noise level in the Project Area. Because this contour is based on the lowest measured ambient noise in the Project Area, if the nearest sensitive receptor is located outside of these contour distances, the sensitive receptor will not experience an ambient noise increase above the County's noise standard.

Consistent with the air quality mitigation measure (MM 4.3-5), MM 4.12-1 requires that a Site Plan Application must include a Site Vicinity Figure that identifies sensitive receptors within 4,000 feet of the construction site for a proposed new well or construction activity (except pipeline). If sensitive uses are located within 4,000 feet, then the mitigation trigger distance is measured from the sensitive receptor property line closest to the well, even if the actual sensitive receptor structure (e.g., residence or school) is located some distance away from the property boundary and from the edge of the well pad, even if activities are not occurring at the well pad edge.

If the nearest sensitive receptor property line is closer than the trigger distances shown in Table 1, MM 4.12-1(d) requires that noise reduction measures must be implemented to protect sensitive receptors. In locations where ambient noise is quieter than the County noise standard of 65 decibels (dB), construction noise may not increase the existing ambient level at the property line of the sensitive receptor by more than 5 dB. In locations where ambient noise is already at or in excess of the 65 dB County threshold, then construction noise may not increase the existing ambient level at the property line of the sensitive receptor by more than 1 dB. MM 4.12-1 also requires Acoustic Noise Reduction Reports to be prepared by qualified professionals to confirm the effectiveness of noise reduction measures, and includes monitoring during construction activities to ensure compliance. Table 1 in MM 4.12-1 shows the construction noise mitigation trigger distances.

Table 1: Construction Noise Mitigation Trigger Distances

Activity	Mitigation Trigger Distance (Feet) For distance to closest sensitive receptor
Drilling (Well Advancement)	3,900
Drilling (Pull Out of Well/Borehole)	2,350
Large-Scale Exploratory Drilling ^(a)	7,900
Well Workover	2,355
Hydraulic Fracturing	2,965

Note:

^(a) Kenai Drill Rig #7

Operational noise related to the Project is lower than construction noise and is addressed in MM 4.12-2. MM 4.12-2 includes the mandatory setback distances in the Ordinance for new wells. MM

4.12-2 has been modified as follows to clarify that measurement of the distances is from the edge of the well pad closest to the sensitive receptor property line and to acknowledge the different setback for schools:

MM 4.12-2(3)(b): “if the well site is between two hundred and ten (210) feet and six hundred and fifty (650) feet from the closest edge of the well pad and nearest property line of a sensitive receptor other than a school, then it shall be shown on the site plan. If there is a neighborhood of sensitive receptors then the site plan shall identify the nearest group.

MM. 4.12-2(3)(c) “Location of a well between two hundred and ten (210) feet) from all sensitive receptors with the exception of schools) or three hundred (300 feet) (from schools) and six hundred and fifty (650) feet from the closest edge of the well pad and nearest property line of a sensitive receptor shall require either details of the use of electric power for the well production which will mitigate the noise or the submittal of an Acoustic Noise Reduction Report if diesel power is used for the well production.

MM 4.12-2(1)(c) prohibits geophysical testing methods using vibroseis vehicles to a minimum of 150 feet from the closest occupied building, water well, sewer system, or septic tanks, as well as geophysical testing methods using shotholes employing with explosives to a minimum of 300 feet from these uses. For well construction activities that occur outside the mandatory setback distance (of either 210 or 300 feet) but within 650 feet of the sensitive use property line, then MM 4.12-2 requires that either the well is operated with electric equipment, or submit an Acoustic Noise Reduction Report, so that operational noise at the sensitive receptor property line does not increase by more than 5 dB (in locations where ambient noise is less than 65 dB) and may not exceed the County’s 65 dB standard, or more than 1 dB (in locations where ambient noise is already at or above 65 dB).

Both the mandatory setback distances in the Ordinance and the mitigation measure trigger distances are summarized in Table 4.12-15 of the SREIR (October 2020). As explained above, there is no inconsistency between the setback distances and these mitigation measure trigger distances. Table 4.12-15 is reproduced below.

Table 4.12-15: Compilation of Mitigation Trigger Distances and Mandatory Setbacks- Sensitive Receptors

	Mitigation Trigger Distances Effective During Construction			Mitigation Trigger Distances (MM 4.12-2) Operations		
Well Depth (Feet)	Mitigation Measure 4.3-5 (Feet) Air	Mitigation Measure 4.12-1 (Feet) Noise		Default Distance Effective During Operations (Feet) Noise		Mandatory Minimum Setback (Feet)
				Electric Powered	Diesel Powered	
Western Subarea						
10,000	367	Drilling (Well Advancement)	3,900	198	650	210 other receptors 300 – School
		Drilling (Pull Out of Well/Borehole)	2,350			
		Large-Scale Exploratory Drilling	7,900			
		Well Workover	2,355			
		Hydraulic Fracturing	2,965			
5,000	116	Drilling (Well Advancement)	3,900	198	650	210 other receptors 300 – School
		Drilling (Pull Out of Well/Borehole)	2,350			
		Large-Scale Exploratory Drilling	7,900			
		Well Workover	2,355			
		Hydraulic Fracturing	2,965			

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Well Depth (Feet)	Mitigation Measure 4.3-5 (Feet) Air	Mitigation Measure 4.12-1 (Feet) Noise		Default Distance Effective During Operations (Feet) Noise		Mandatory Minimum Setback (Feet)
				Electric Powered	Diesel Powered	
2,000	NA	Drilling (Well Advancement)	3,900	198	650	210 other receptors 300 – School
		Drilling (Pull Out of Well/Borehole)	2,350			
		Large-Scale Exploratory Drilling	7,900			
		Well Workover	2,355			
		Hydraulic Fracturing	2,965			
Central Subarea						
10,000	367	Drilling (Well Advancement)	3,900	198	650	210 other receptors 300 – School
		Drilling (Pull Out of Well/Borehole)	2,350			
		Large-Scale Exploratory Drilling	7,900			
		Well Workover	2,355			
		Hydraulic Fracturing	2,965			

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				Electric Powered	Diesel Powered	
5,000	116	Drilling (Well Advancement)	3,900	198	650	210 other receptors 300 – School
		Drilling (Pull Out of Well/Borehole)	2,350			
		Large-Scale Exploratory Drilling	7,900			
		Well Workover	2,355			
		Hydraulic Fracturing	2,965			
2,000	NA	Drilling (Well Advancement)	3,900	198	650	210 other receptors 300 – School
		Drilling (Pull Out of Well/Borehole)	2,350			
		Large-Scale Exploratory Drilling	7,900			
		Well Workover	2,355			
		Hydraulic Fracturing	2,965			

Table 4.12-15: Compilation of Mitigation Trigger Distances and Mandatory Setbacks- Sensitive Receptors

	Mitigation Trigger Distances Effective During Construction			Mitigation Trigger Distances (MM 4.12-2) Operations		
Well Depth (Feet)	Mitigation Measure 4.3-5 (Feet) Air	Mitigation Measure 4.12-1 (Feet) Noise		Default Distance Effective During Operations (Feet) Noise		Mandatory Minimum Setback (Feet)
				Electric Powered	Diesel Powered	
Eastern Subarea						
10,000	296	Drilling (Well Advancement)	3,900	198	650	210 other receptors 300 – School
		Drilling (Pull Out of Well/Borehole)	2,350			
		Large-Scale Exploratory Drilling	7,900			
		Well Workover	2,355			
		Hydraulic Fracturing	2,965			
5,000	NA	Drilling (Well Advancement)	3,900	198	650	210 other receptors 300 – School
		Drilling (Pull Out of Well/Borehole)	2,350			
		Large-Scale Exploratory Drilling	7,900			
		Well Workover	2,355			
		Hydraulic Fracturing	2,965			

Table 4.12-15: Compilation of Mitigation Trigger Distances and Mandatory Setbacks- Sensitive Receptors

	Mitigation Trigger Distances Effective During Construction			Mitigation Trigger Distances (MM 4.12-2) Operations		
Well Depth (Feet)	Mitigation Measure 4.3-5 (Feet) Air	Mitigation Measure 4.12-1 (Feet) Noise		Default Distance Effective During Operations (Feet) Noise		Mandatory Minimum Setback (Feet)
				Electric Powered	Diesel Powered	
2,000	NA	Drilling (Well Advancement)	3,900	198	650	210 other receptors 300 – School
		Drilling (Pull Out of Well/Borehole)	2,350			
		Large-Scale Exploratory Drilling	7,900			
		Well Workover	2,355			
		Hydraulic Fracturing	2,965			

6: Health Risk Assessments

Two-single well Health Risk Assessments (HRAs) (March 2015 and September 2015) and one multi-well HRA (October 2015) were completed for the 2015 FEIR. All three HRAs are provided in Appendix B of the SREIR. A technical report further explaining the HRAs is provided in Appendix B-1 of the SREIR. See SREIR (October 2020), Vol. 1, Appendix B-1. The HRAs were performed following the Office of Environmental Health Hazards Agency (OEHHA), Air Toxics Hot Spots Program risk assessment guidelines (OEHHA 2015). As recommended by the guidelines, the California Air Resources Board (CARB) Hotspots Analysis and Reporting Program, Version 2 (HARP2) was used to perform a refined HRA for potential future construction and operational emissions. HARP2 includes three modules: a dispersion model, an exposure/dose module, and a risk module. All methodologies and inputs to the HRAs were reviewed and verified by the San Joaquin Valley Air Pollution Control District (SJVAPCD).

Single-well HRAs

The single-well HRAs assessed health risk from both construction and operations in terms of cancer risk and acute and chronic health hazards.

Construction

Emissions from the following seven phases of construction were conservatively considered to occur simultaneously, although the activities are unlikely to occur concurrently: land preparation, drilling survey, well drilling, well completion, well flowline, pump unit, and electrical. Emissions from the drilling of wells to depths of 2,000 feet, 5,000 feet, and 10,000 feet were evaluated in the March 2015 HRA. A 15,000-foot well was added in the September 2015 HRA. According to the California Geologic Energy Management Division, only 3 percent of the wells drilled in Kern County in 2014 were at depths of 10,000 feet or greater.

It was assumed that wells of 2,000 feet, 5,000 feet, and 10,000 feet would require nine trucks, 45 pieces of off-road equipment, and three drill rigs and that wells of 15,000 feet would require 10 trucks, 54 pieces of off-road equipment, and three drill rigs. See Table 1 of the March 2015 and September 2015 HRAs. A 2,000-foot well was assumed to require three rigs of 440 horsepower (HP) and take four days to drill; a 5,000-foot well was assumed to require three rigs of 440 HP and take eight days to drill; a 10,000-foot well was assumed to require three rigs of 1,040 HP and take 23 days to drill; and a 15,000-foot well was assumed to require three rigs of 1,040 HP and take 65 days to drill. CARB's OFFROAD emissions estimate model was used to calculate emissions from the mobile and off-road diesel equipment. Because this model only extended to 2029 at the time the HRAs were prepared, emissions were assumed to remain the same from 2029 to 2035 (a conservative assumption that assumes no further reduction in mobile source emissions post-2029). Drilling emissions were conservatively assumed to occur along a fence line shared by an oil producer and a private resident.

Appendix B of the single-well HRAs lists the equipment analyzed for each well depth and lists emissions by category of activity (land preparation, drilling survey, well drilling, well completion,

well flowline, pump unit, electrical). Appendix A of the single-well HRAs shows the pounds per year (lbs/yr) and pounds per hour (lbs/hr) of each toxic air contaminant (TAC) analyzed in the HRAs by source (fugitive volatile organic compounds (VOCs), flare, sump, truck loading rack, oil storage tank, process heater, steam generator, internal combustion engine, drilling, cogen, drilling mud sump, boiler, and thermally enhanced oil recovery equipment (TEOR)).

Emissions were modeled for years 2015 and 2035 for all well depths and year 2018 for a 10,000-foot well. Table 2 of the March 2015 and September 2015 HRAs shows emissions of particulate matter up to 10 microns in diameter (PM₁₀) in total pounds and annual pounds.

The TAC of concern for the Project from construction operations is diesel exhaust or diesel particulate matter (DPM) associated with construction equipment and drill rigs. For purposes of the June 2015 HRA, all particulate matter up to 2.5 microns in diameter (PM_{2.5}) from diesel equipment associated with well drilling (including potential dust and mobile equipment) was assumed to be toxic DPM. For purposes of the September 2015 HRA, all PM₁₀ from diesel equipment associated with well drilling was assumed to be DPM (a more conservative assumption) at the request of the SJVAPCD. See September 2015 Revised HRA, p. 2. This overstates true toxic emissions as a portion of the PM₁₀ calculated included road dust and other sources of fugitive dust associated with well pad construction, well drilling, and completion that are not actually DPM. As explained in the HRAs, the DPM toxicity value determined by the state of California incorporates the cumulative health effects of all of the constituents of diesel exhaust (including other chemicals) into one risk value. Therefore, the only TAC associated with diesel equipment that is modeled in an HRA from well construction and completion is DPM. DPM was the only set of toxic emissions analyzed from drilling operations, as it accounts for over 99 percent of the risk from drilling operations.

The HARP2 model was utilized for the HRA modeling, including five years of meteorological data from AERMOD. Three different locations in Kern County were assessed to capture various terrain characteristics (the Midway Sunset Oilfield in the Western Subarea, the North Shafter Oilfield in the Central Subarea, and the Kern River Oilfield in the Eastern Subarea). Table 4 of the single-well HRAs lists modeling source characteristics and release parameters for each source assessed in the HRAs, including height, temperature, exhaust exit velocity, and diameter. Some sources were modeled as point sources, some as area sources, some as circular area sources, and some as volume sources, per OEHHA and SJVAPCD guidance.

A receptor can hypothetically be exposed to a substance through several different pathways. Typically, the primary environmental exposure pathway in an HRA is direct inhalation of gaseous and particulate air pollutants. However, there is the potential for exposure via non-inhalation pathways due to the deposition of particulate pollutants (DPM) in the environment. For this analysis, HARP2 requires assumptions that DPM could also be ingested via dermal (skin) absorption, soil ingestion, and mother's milk ingestion (at the SJVAPCD's request, though not normally included in HRAs). Polycyclic aromatic hydrocarbons (PAHs) were the only pollutants analyzed for which there is a non-inhalation pathway. Table 5 in the single-well HRAs shows the chemical cancer risk factors for DPM, total PAHs, formaldehyde, and benzene. The table shows that DPM and PAHs are significantly more toxic than formaldehyde and benzene as DPM has an

inhalation potency factor 1.1 and thus is approximately 10 times more toxic than benzene, with an inhalation potency factor of 0.10.

The single-well HRAs found health risk beyond the then-applicable SJVAPCD threshold of 10 in one million in some instances, depending on well depth, year, and Subarea. These results are shown in Table 4.3-34 in the SREIR. See SREIR (October 2020), Vol. 1, at 4.3-148–149.

Operations

Operational equipment emissions in the oil processing scenario were assumed from two 1,000-barrel (Bbl) aboveground tanks, one 3,000-Bbl aboveground tank, one 10 million British thermal units per hour (MMBtu/hour) flare, a truck loading rack, fugitive emissions from valves, flanges, one 30- by 30-foot sump, and TEOR equipment. The TEOR was included rather than hydraulic fracturing because hydraulic fracturing, or well stimulation treatment (WST), primarily involves adding chemicals to water and injecting them into the subsurface area. Adding chemicals to water used as part of a down-well process generally would not cause air emissions. Instead, the chemicals are underground in the wells into which they were injected, and thus any potential emissions associated with WST, such as large diesel-fired drill rigs or workover rigs, have already been included and accounted for in the HRAs. To the extent that WST would cause air emissions separate from diesel exhaust, any potential off-gassing of WST fluids after well stimulation occurs is already included in the HRAs due to the inclusion of the sump.

Operational equipment emissions in the natural gas scenario were assumed from one 100 MMBtu/hour flare, one 8 MMBtu/hour process heater, one 10 MMBtu/hour boiler, one 85 MMBtu/hour steam generator, and one 33-megawatt cogeneration plant.

For operations, the primary risk driver is benzene, which is associated with oil processing equipment. Benzene accounts for approximately 94 percent of the risk from the oil processing equipment. Lesser risk drivers are formaldehyde and PAHs. All three are byproducts of natural gas combustion. As explained above, Appendix A of the single-well HRAs lists TAC emissions by pollutant and by source.

Operational emissions were conservatively assumed to occur along a fence line shared by an oil producer and a private residence.

The HARP2 model was utilized for the HRA modeling, including five years of meteorological data from AERMOD. Three different locations in Kern County were assessed to capture various terrain characteristics (the Midway Sunset Oilfield in the Western Subarea, the North Shafter Oilfield in the Central Subarea, and the Kern River Oilfield in the Eastern Subarea). Potential sources were modeled as explained in Table 4 of the single-well HRAs. Some sources were modeled as point sources, some as area sources, some as circular area sources, and some as volume sources, per OEHHA and SJVAPCD guidance.

Exposure Assessment and Dose Response

Appendix A to the single-well HRAs quantified TAC emissions by source for the following 31 TACs:

- 1,2,4 Trimethylbenzene
- Acenaphthene
- Acenaphthylene
- Acetaldehyde
- Acrolein
- Anthracene
- Benz(a)anthracene
- Benzene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(g,h,i)perylene
- Benzo(k)fluoranthene
- Chrysene
- Cyclohexane
- Dibenzo(a,h)anthracene
- DPM
- Ethylbenzene
- Fluoranthene
- Fluorene
- Formaldehyde
- Hydrogen sulfide
- Indeno(1,2,3-cd)pyrene
- Naphthalene
- n-Hexane
- PAHs
- Phenanthrene
- Phenol
- Propylene
- Pyrene
- Toluene
- Xylenes

Dose-response information for noncancer health effects is used to determine Reference Exposure Levels (RELs). The acute and chronic RELs are the concentration at which no adverse noncancer health effects are anticipated even in sensitive members of the general population. The OEHHA has explained that “[t]he most sensitive health effect is chosen to develop the REL if the chemical affects multiple organ systems.” (OEHHA 2015, p. 2-3). Acute RELs are for infrequent (1-hour) exposures that occur no more than once every two weeks in a given year. Chronic RELs are for 24-hour per day exposures for at least a significant fraction of a lifetime. The OEHHA has explained that exceeding an acute or chronic REL does not necessarily indicate that an adverse health impact will occur (OEHHA 2015, p. 4-32). The REL is not the threshold where population health effects would first be seen; however, levels of exposure above the REL have an increasing, but undefined,

probability of resulting in an adverse health impact, particularly in sensitive individuals (e.g., depending on the toxicant, the very young, the elderly, pregnant women, and those with acute or chronic illnesses) (OEHHA 2015, p. 6-2).

The target organ systems for the acute and chronic RELs associated with the HAPs analyzed in the single-well HRAs are shown in the tables below. The acute and chronic RELs are built into the HARP2 model.

Target Organs Affected by Toxic Air Contaminants (Acute Toxicity)

TAC	AL	CV	DEV	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Acetaldehyde				X						X	
Acrolein				X						X	
Benzene			X		X	X		X	X		
Formaldehyde				X							
Hydrogen sulfide								X	X	X	
Phenol				X						X	
Toluene			X	X				X		X	
Xylenes				X							

Source: Table 10B - Target Organs Affected by Toxic Air Contaminants (Acute Toxicity) December 7, 2012 South Coast Air Quality Management Permit Application Package "L" for Use in Conjunction with the Risk Assessment Procedures Version 7.0.

Target Organs Affected by Toxic Air Contaminants (Chronic Toxicity)

TAC	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Acetaldehyde												X	
Acrolein												X	
Benzene				X			X			X			
Diesel Particulate Matter												X	
Ethylbenzene	X			X	X				X				
Formaldehyde												X	
Hydrogen sulfide												X	
n-hexane										X			
Propylene												X	
Toluene				X						X		X	
Xylenes										X			

Source: Table 10A - Target Organs Affected by Toxic Air Contaminants (Chronic Toxicity) December 7, 2012 South Coast Air Quality Management Permit Application Package "L" for Use in Conjunction with the Risk Assessment Procedures Version 7.0.

Key:

AL = Alimentary system (liver);

BN = Bones and teeth

CV = Cardiovascular system;

DEV = Developmental

END = Endocrine system

EYE = Eye

HEM = Hematopoietic system

KID = Kidney

NS = Nervous System

REP = Reproductive System

RESP = Respiratory system

SKIN = Skin

TAC = toxic air contaminant

The HRAs conservatively assume that all receptors are sensitive receptors. A receptor can be exposed to a substance through several different pathways. Typically, the primary exposure pathway in an HRA is direct inhalation of gaseous and particulate air pollutants. However, there is the potential for exposure via non-inhalation pathways due to the deposition of particulate pollutants (DPM) in the environment. HARP2 requires assumptions that DPM could also be ingested via dermal (skin) absorption, soil ingestion, and mother's milk ingestion (at the SJVAPCD's request, though not normally included in HRAs). PAHs were the only pollutants analyzed for which there is a non-inhalation pathway. Table 5 in the single-well HRAs shows the chemical cancer risk factors for DPM, total PAHs, formaldehyde, and benzene. As explained above, the table shows that DPM and PAHs are significantly more toxic than formaldehyde and benzene.

For cancer risk, the single-well HRAs did not find health risk beyond the then-applicable SJVAPCD threshold of 10 in one million for natural gas processing equipment. See SREIR (October 2020), Vol. 1, at 4.3-149 (Table 4.3-35a). The single-well HRAs found potential health risks beyond the SJVAPCD threshold for oil processing equipment when all equipment operates full time and is located on a shared fence line with a sensitive receptor for certain locations. See SREIR (October 2020), Vol. 1, at 4.3-150 (Table 4.3-35b). However, all of the equipment analyzed in the operational scenario would require SJVAPCD permits, and thus the risk threshold must be met or no permits can be issued. None of the acute impacts or noncancer hazards or for either an oil processing facility or a gas processing facility exceeded the regulatory threshold of 1.0. See SREIR (October 2020), Vol. 1, Tables 4.3-36 and 4.3-37, at 4.3-150–151.

For noncancer risk, none of the acute or chronic noncancer hazards for either an oil processing facility or a gas processing facility exceeded the regulatory threshold of 1.0. See SREIR (October 2020), Vol. 1, Tables 4.3-36 and 4.3-37, at 4.3-150–151. The highest acute risk associated with drilling one well was 0.0098 as compared to the regulatory significance standard of 1.0. The highest calculated acute risk associated with all operations at a theoretical oil and gas production facility was 0.23 as compared to the regulatory significance standard of 1.0. The highest chronic risk associated with emissions from drilling a 10,000-foot well was 0.006. The highest chronic risk associated with all oil and gas processing operations at a theoretical oil and gas production facility was 0.46.

Multi-Well HRA

The multi-well HRA scenario assumed twelve 13,000-foot wells evenly spaced in each of four concentric rings (48 wells total), at the following distances from the receptor site: 1/8 mile (660 feet), 1/4 mile, 3/4 mile, and 1 mile. See SREIR (October 2020), Vol. 1, Appendix B, Cumulative HRA, October 2015, at 3. The equipment list was identical to that for the single-well HRAs, and all seven phases of construction were again assumed to occur concurrently. Each well was assumed to need 10 trucks, 55 pieces of off-road equipment, and three drill rigs of 1,040 HP for 43 days. See Table 1 of the multi-well HRA. Each well was assumed to have an associated drilling mud sump with emissions conservatively assumed to have a continuous VOC release rate of 0.01 lbs/hr, and those VOCs were assumed to contain potentially toxic compounds typically found in crude oil,

such as benzene. It was also assumed that each well would undergo a workover every other year, with the same workover equipment list as for the single-well HRAs. All PM₁₀ emissions were assumed to be DPM, which, as explained above, overstates true emissions as a portion of the PM₁₀ calculated included road dust and other sources of fugitive dust associated with well pad construction, well drilling, and completion that are not actually DPM.

The multi-well HRA followed the same guidance and included the same assumptions as described above for the single-well HRAs. SJVAPCD emission factors were used to calculate future exhaust levels, which include future CARB regulatory compliance deadlines related to cleaner on-road and off-road heavy-duty equipment. These emission levels are built into CARB's OFFROAD model, which was used to calculate drilling exhaust. Emission calculations were derived from SJVAPCD, CARB, and U.S. Environmental Protection Agency (EPA)-approved emission factors, including, but not limited to, the EPA's TANKS program, the EPA's AP-42: Compilation of Air Emissions Factors, and SJVAPCD regulatory limits. Flare emission factors were provided by the SJVAPCD. Diesel exhaust emission factors were provided by CARB's OFF-ROAD model. Exhaust temperature and stack exhaust velocity were obtained from a local group of production engineers and confirmed by a 2014 study by AECOM, described in Appendix B-1.

Annual modeled emissions were determined by taking the total PM₁₀ emissions associated with drilling a 13,000-foot well and multiplying that value by 48 wells, then dividing by 70 years. This resulted in 1,143.76 pounds of diesel exhaust (primarily from well drilling and well completion) per well, with the vast majority coming from well drilling (884.67 lbs/year) and well completion (245.25 lbs/year) (the same values as for the single-well HRAs). The well workover assumed in the multi-well HRA added an additional 18.24 pounds per well. Emissions were annualized to represent a conservative assessment of potential risk. Events like well rework are likely to occur during the day, and thus annualized emissions could overstate calculated risk as nighttime meteorology is typically characterized by low wind speeds and stable atmospheric conditions, which result in high modeled concentrations.

Table 4.3-38 in the SREIR shows the annualized emissions resulting from the multi-well HRA scenario, which includes emissions from DPM; 1, 2, 4 Trimethylbenzene; benzene; cyclohexane; ethylbenzene n-hexane, toluene, xylenes, and hydrogen sulfide. See SREIR (October 2020), Vol. 1, at 4.3-154. Emissions from drilling mud sumps accounted for less than 1 percent of the total risk value from the scenarios for which HRAs were performed. Multi-pathway exposure was not utilized, nor were chronic and acute impacts considered as approximately 99.9 percent of the risk associated with the multi-well scenario comes from DPM and thus inhalation is the dominate pathway for exposure.

The multi-well HRA found that health risk would be 9.3 in one million under this conservative scenario, well below the SJVAPCD current threshold of 20 in one million. CARB's OFFROAD emission factors show an approximately 48 percent reduction in diesel exhaust from off-road engines since the previous HRAs were completed in 2015, which, if the multi-well HRA were re-run in 2020, would result in emissions and corresponding risk of approximately 4.84 in one million versus the 9.3 in one million included in the multi-well HRA in the SREIR.

HRAs' Conservative Assumptions Related to Infants and Young Children

The OEHHA Air Toxics Hot Spots Program risk assessment guidelines include a description of the algorithms, exposure variates, cancer and noncancer health values, and air modeling protocols for HRAs (OEHHA 2015). In 2015, the guidelines were modified to incorporate “explicit consideration of infants and children in assessing risks from air toxics, necessitated revisions of the methods for both noncancer and cancer risk assessment, and of the exposure variates” (OEHHA 2015, p.1). This was in response to the Children’s Environmental Health Protection Act of 1999, which required the OEHHA to evaluate all ambient air quality standards to determine whether they adequately protect human health, particularly that of infants and children; to identify toxic air contaminants that disproportionately impact children; and to ensure that health assessments of toxic chemicals explicitly incorporate considerations of infants and children. Health & Safety Code § 39606.

In addition to these assumptions, the OEHHA has also developed age sensitivity factors (ASFs) to take into account the increased sensitivity to carcinogens during early-in-life exposure. In the absence of chemical-specific data, the OEHHA recommends a default ASF of 10 for the third trimester to age 2 years, and an ASF of 3 for ages 2 through 15 years, to account for potential increased sensitivity to carcinogens during childhood. These ASFs were also incorporated into the HARP2 model.

7.2.2 Public Workshop (August 17, 2020)

As described in Section 7.1.2, a virtual public workshop was held on August 17, 2020, via Microsoft Teams Live Event. The purpose of the public workshop was to provide information to interested parties on the structure and content of the Draft SREIR (August 2020) and provide information on opportunities to comment on the Draft SREIR (August 2020).

The workshop was conducted virtually online in compliance with the Governor’s Executive Order (EO) N-29-20. On March 17, 2020, Governor Newsom issued EO N-29-20 to provide flexibility for agencies to conduct public events in light of the COVID-19 pandemic and social distancing recommendations. The EO authorizes agencies “to hold public meetings via teleconferencing and to make public meetings accessible telephonically or otherwise electronically to all members of the public seeking to observe and to address the local legislative body or state body.” (EO N-29-20, Paragraph 3).

The public workshop included a verbal presentation and PowerPoint presentation. Spanish language translation of the presentation was available to participants by closed captioning and via a call-in phone number. Workshop materials, including instructions for participating and PowerPoint presentation slides, are included in this section of the Response to Comments chapter, below. A recording of the public workshop is available on the Kern County Planning and Natural Resources website at:

https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/OilGas_SREIR_081720Workshop_Video.mp4.

During the public workshop, participants were able to submit comments and questions in writing through the Microsoft Live Event chat feature. Those comments and questions are provided below, with detailed responses. Written comments and questions submitted in Spanish were translated during the Public Workshop by Staff using Google Translate.

Public Workshop (August 2020) – Aguirre 1

Comment: My name is Gustavo Aguirre with Center on Race Poverty & the Environment. The California Council of Science and Technology recommended that all oil and gas wells be located at least 2,500 feet from homes, schools and hospitals to protect environment and public health. Yet the draft EIR does not require any setback distance between oil and gas wells and sensitive receptors. Is the county going to consider requiring a 2,500 foot buffer between new wells and sensitive receptors?

Response: Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment states that the California Council of Science and Technology recommended that oil and gas wells be located at least 2,500 feet from homes, schools, and hospitals to protect environment and public health. The comment asks whether the SREIR will include such a setback.

Please see Responses to Comments 0009-33, 0009-84, and 0009-86. The SREIR (August 2020) includes setbacks in mitigation measures regarding air quality impacts on health risk (Section 4.3-5) and noise impacts (MM 4.12-2), which are supported by studies, including a Health Risk Assessment, that show that the various distances in the SREIR and Ordinance are sufficient. The SREIR (October 2020) explains that the distances in MM 4.3-5 and 4.12-2 are based on local conditions, equipment, and drilling practices utilized in Kern County and incorporate numerous conservative assumptions to establish scientifically supported, safe distances for sensitive receptors. See SREIR (October 2020), Vol. 1, at 6-35. Please see Responses to Comments 0008-27 and 0009-62 for further discussion of the adequacy of the Health Risk Assessment analysis and the resulting distances in MM 4.3-5. The distances established in the noise mitigation are based on contours generated by conservative measurements of noise levels of various activities. For further discussion of the adequacy of the triggering distances in the noise mitigation, please see Responses to Comments 0008-20 to 0008-22. For a discussion of studies supporting larger setbacks distances, please see Responses to Comments 0009-57 to 0009-89. The SREIR (August 2020) also explains that a 2,500-foot setback could extinguish mineral owners' rights to access their minerals and expose the County to potential takings liability. This discussion has been updated in the SREIR (October 2020). See SREIR (October 2020), Vol. 1, at 6-34–45. As to potential takings liability, please also see Responses to Comments 0009-84 through 0009-88. The SREIR contains a thorough discussion of the infeasibility of a general 2,500-foot setback alternative, as compared to the SREIR's incorporation of setbacks that are tailored to address specific impact areas such as noise and air quality.

Public Workshop (August 2020) – Escoto 1

Comment: Mi nombre es Estela Escoto soy residente de Arvin. Tambien soy president del Comite por un Arvin Mejor. Arvin esta rodeado de posos de aceite y gas, y yo vivo a menos de 1 milla de posos de aceite. Como persona que solo habla espanol, yo no he podido participar completamente en esta junta por que el condado se reusa a traducir toda la junta al espanol aunque el condado ya contrato a un intérprete para traducir las preguntas del español al ingles. Traducirá el condado documentos claves al espanol? Para que nosotros realmente podamos entender los impactos de 67,000 posos de gas y aceite en el ambiente y la salud de las familias? Tambien, el Departamento de Planificacion conducira procesos para permitir una participacion significativa del publico que permita que personas, incluyendo las de habla hispana podamos dar comentarios verbalmente en adición a las audiencias cuando ustedes se les requiere hacerlo?

***Comment Translation -** My name is Estela Escoto and I am an Arvin resident. I'm also president of the Committee for a Better Arvin. Arvin is surrounded by oil and gas wells, and I live less than 1 mile from oil wells. As an individual who only speaks Spanish, I have not been able to fully participate in this meeting because the county refuses to translate the entire meeting into Spanish, even though the county already hired an interpreter to translate questions from Spanish to English. Will the county translate the key documents into Spanish? So that we can truly understand the impacts of 67,000 gas and oil wells on the environment and the health of our families? Also, will the Planning Department conduct processes to allow meaningful public engagement that allows individuals, including Spanish-speaking people as well, to give verbal comments in the hearings when it is required?

Response: Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment states that the commenter was not able to fully participate at the August 17, 2020, public workshop on the SREIR (August 2020) because the meeting was not translated into Spanish. The comment also asks whether key documents will be translated into Spanish, and whether the Planning Department will allow residents to provide verbal comments at the August 17, 2020 public workshop on the SREIR (August 2020).

Please see Responses to Comments 0007-2 and 0007-5. Currently, neither CEQA nor the CEQA Guidelines require lead agencies to translate notices or portions of environmental review documents into non-English languages. Yet, to foster public participation among Spanish speaking residents, Spanish translation services were provided at (1) the May 13, 2020, virtual scoping meeting; (2) the August 17, 2020, virtual public workshop on the SREIR (August 2020); and (3) the November 10, 2020, virtual public workshop on the SREIR (October 2020). At these meetings, Spanish translation was made available through closed captions of the meeting's discussion, and live translation (verbal) by calling a phone number provided on the screen. In addition, Spanish-speaking residents were able to submit written comments in Spanish, which were then translated live into English.

Public Workshop (August 2020) – Anonymous 1

Comment: Yo vivo a solo unas millas de los pozos de aceite, gas y refinarias. Como persona que hablo ingles limitado no he podido participar en este proceso porque el condado se ha reusado a usar interprete para traducir las preguntas en español al ingles y traducir todas las juntas completas de este tema al español. Traducira el condado documentos claves al español para que podamos entender los impactos de 67,000 pozos de gas y aceite en el ambiente y la salud de las familias? El Departamento de Planificacion conducira procesos para permitir una participacion significativa del publico que permita que personas, incluyendo las de habla hispana podamos dar comentarios verbales en adiccion a las audiencias cuando ustedes se le requiere hacerlo?

***Comment Translation -** I live just a few miles from oil, gas wells and a refinery. As a person who speaks limited English I have not been able to participate in this process because the county has been refused to use interpreters to translate the questions in Spanish into English and translate all the full meetings of this topic into Spanish. Will the county translate key documents into Spanish so that we can understand the impacts of 67,000 gas and oil wells on the environment and the health of families? The planning department will conduct processes to allow significant participation of the public that allows people, including Spanish-speaking people, to give verbal comments on addition when you are required to do so?

Response: Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment states that commenter was not able to fully participate at the August 17, 2020, public workshop on the SREIR (August 2020) as the meeting was not translated into Spanish. The comment also asks whether key documents will be translated into Spanish and whether the County's Planning Department will allow Spanish-speaking persons to submit verbal comments at the August 17, 2020, public workshop.

Please see Response to Comment Public Workshop (August 2020) – Escoto 1 and Global Response (GR) 3 – Public Process. Neither CEQA nor the CEQA Guidelines require lead agencies to translate public notices or portions of environmental documents into non-English languages. However, to foster public participation in the SREIR's preparation, Spanish translation services were provided via closed captioning and live interpretation at the public workshops on the SREIR (August 2020) and SREIR (October 2020). As noted in GR-3, while the public workshop on the Draft SREIR (August 2020) was not required under CEQA or a public meeting subject to the Brown Act, it was held virtually online consistent with Executive Order N-29-20 and its standards for virtual public participation.

Public Workshop (August 2020) – Anonymous 2

Comment: Soy residente de Lamont y Presidente del Comité Progreso de Laont. Mi comunidad esta rodeada de pozos de aceite, gas y una refinaria, yo vivo a solo millas de los pozos de aceite y la refinaria. Porque el condado esta proponiendo inyectar agua contaminada de aceite en los mantos acuíferos subterráneos, cuando muchísima gente dependemos del agua subterránea para beber?

***Comment Translation** - I am a resident of Lamont and Chairman of the Lamont Progress Committee. My community is surrounded by oil, gas wells and a refinery, I live just miles from the oil wells and the refinery. Because the county is proposing to inject oil-contaminated water into underground aquifer mantle, when many people depend on underground water to drink?

Response: Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment states that the Project would entail the injection of oil-contaminated water into underground aquifers, though many of the County residents depend on subterranean drinking water sources.

Please see Responses to Comments 0009-48, 0009-51, 0009-53, and Global Response (GR) 1 – Beyond the Scope of the SREIR. As noted in GR-1 and Response to Comment 0009-48, the Court of Appeal’s decision in *King & Gardiner Farms, LLC v. County of Kern* upheld the 2015 FEIR against all of the claims raised on appeal except for “five areas in which the EIR did not comply with CEQA: (1) mitigation of water supply impacts; (2) impacts from PM2.5 emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well Health Risk Assessment for public review and comment.” Case No. F077656, Slip Opinion, (Cal. Ct. App. 5th Dist. Feb. 25, 2020), at p. 140. The issues raised in the comment relate to water quality, which was not one of the five deficiencies found by the Court of Appeal. Therefore, the SREIR was not required to re-open or reanalyze the Project’s impacts on water quality. Nevertheless, the SREIR (August 2020) sufficiently discusses foreseeable and significant impacts to water quality, including impacts from produced water disposal in injection wells. Potential Project impacts to water quality are primarily discussed in Section 4.9, Hydrology and Water Quality. The SREIR (August 2020) explains that discharges to injection wells are subject to regulatory oversight under the California Geologic Energy Management Division’s Underground Injection Control regulations and State and Regional Water Boards. See SREIR (October 2020), Vol. 1, at 4.9-147–153.

Public Workshop (August 2020) – Anonymous 3

Comment: How would the CPU Alternative function?

Response: Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. The comment asks how the Conditional Use Permit (CUP) Alternative would function.

A complete discussion of the CUP Alternative (Alternative 2) can be found in the 2015 FEIR, Vol. 1, Section 6.6.2, at 6-19–21, and the SREIR (October 2020), Vol. 1, Section 6.7.2., at 6-24–26. Under the CUP Alternative, all new oil and gas exploration, development, and production activities would be permitted in the majority of the Project Area upon the issuance of a CUP. The 2015 FEIR and SREIR (October 2020) explain, however, that the CUP Alternative would be environmentally inferior because environmental effects would be assessed for each oil and gas well on a case-by-

case basis, as opposed to the proposed Project's comprehensive, industry-wide mitigation strategy. See SREIR (October 2020), Vol. 1, at 6-25. The Project is environmentally superior to the CUP Alternative because under the Project, applicants will not have the opportunity to avoid compliance with new development standards, conditions, or mitigation measures by demonstrating that specific projects would not cause certain impacts. Lastly, the Court of Appeal upheld the legal adequacy of the alternatives considered in the 2015 FEIR, meaning the CUP Alternative was not required to be reanalyzed or reconsidered in the SREIR. Slip Opinion, at p. 140.

Public Workshop (August 2020) – Aguirre Jr. 1

Comment: My name is Gustavo Jr. Aguirre, and I am with the Central California Environmental Justice Network. Kern County is already in a region that is not meeting federal or state air quality standards for PM2.5, PM10, and ozone. Yet this project will emit more than 1,000 tons of PM2.5 every year for more than two decades, not to mention other deadly pollutants and greenhouse gases. How will the County reduce the Project's air pollution impact to below significant levels?

Response: Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment states that the County is located in a region that is not meeting federal or state air quality standards for PM2.5, PM10, or ozone, and asks how the Project's air quality impacts will be reduced to less than significant levels.

Please see Global Response (GR) 1 – Beyond the Scope of the SREIR. The Court of Appeal decision upheld the 2015 FEIR against all of the claims raised on appeal except for “five areas in which the EIR did not comply with CEQA: (1) mitigation of water supply impacts; (2) impacts from PM2.5 emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well Health Risk Assessment (HRA) for public review and comment.” Slip Opinion, at p. 140. While the SREIR was required to correct deficiencies of the 2015 FEIR related to PM2.5 emissions and recirculate the Multi-Well Health Risk Assessment, the issues identified in the comment related to PM10 and ozone fall outside the scope of the Court of Appeal ruling. The SREIR was not required to reanalyze or re-open the Project's impacts related to emissions of PM10, ozone, or other criteria pollutants. A full discussion of the Project's air quality impacts and related mitigation measures can be found at Section 4.3, Air Quality, of the 2015 FEIR (Vol. 1, at 4.3-1–122) and Section 4.3, Air Quality, of the Draft SREIR (August 2020). See SREIR (October 2020), Vol. 1, at 4.3-1–166). Please see Responses to Comments 0009-16 through 0009-18, 0009-141, 0009-144 through 0009-146, and 0009-148.

As for the comment's concerns related to PM2.5, Section 4.3, Air Quality, of the SREIR (August 2020) was prepared to correct the deficiencies identified by the Court of Appeal. Among other things, Section 4.3 of the SREIR discusses the applicable air quality plans for PM2.5 in the Project Area and analyzes whether the Project would conflict with or obstruct implementation of such air quality plans. See SREIR (October 2020), Vol. 1, at 4.3-4–5, 4.3-83–84. The SREIR also describes the suite of air quality mitigation measures, including MM 4.3-8, which requires emissions of PM2.5 to be mitigated to a level of no net increase under the Oil & Gas Emission Reduction Agreement. See SREIR (October 2020), Vol. 1, at 4.3-164–166. Please see Responses to Comments

0009-24 through 0009-29. The SREIR explains that the following air quality impacts will remain significant and unavoidable even with the implementation of mitigation measures: Impact 4.3-2 (Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region is Non-Attainment Under an Applicable Federal or State Ambient Air Quality Standard); Impact 4.3-3 (Expose Sensitive Receptors to Substantial Pollutant Concentrations); Impact 4.3-4 (Result in Other Emissions Such as Those Leading to Odors Adversely Affecting a Substantial Number of People); and Impact 4.3-5 (Result in Other Cumulatively Considerable Air Quality Impacts).

Public Workshop (August 2020) – Noble 1

Comment: On behalf of the applicants WSPA and CIPA, we strongly support the SREIR, prepared by County staff to comply with the court of appeal's decision requiring further environmental analysis of specific impacts. We look forward to completion of the SREIR and reinstatement of the County's highly successful permitting program, which provides environmental protections through rigorous conditions and mitigation measures, while providing industry with the certainty and efficiency of a streamlined process.

Response: Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment supports the SREIR as conforming to the Court of Appeal's decision requiring further environmental analysis to address certain deficiencies of the 2015 FEIR. This comment is noted and will be considered by County decisionmakers.

Public Workshop (August 2020) – Marquez 1

Comment: Mi nombre es Anabel Marquez yo soy residente de Shafter. Yo soy la presidenta de Un Comité de Un Shafter Mejor. Mi comunidad esta rodeada de aciete y de posos petroleros, yo vivo menos de pocas milas de poso de petrolio. Porque el condado propone de continuar usando las aguas negras de petrolio para regar los campos agricolas? y tambien porque el condado propone que "reciclen" la agua negra de los aceties petroleros para que nuestra familia consuma esa agua sucia?

***Comment Translation -** My name is Anabel Marquez and I'm a Shafter resident. I'm the president of A Committee for a Better Shafter. My community is surrounded by oil fields and oil wells. I live within a few miles of the oil wells. Why does the county propose to continue using oil wastewater to irrigate the agricultural fields? Also, why does the county propose to "recycle" the oil wastewater so that our family consumes that dirty water?

Response: Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment expresses concerns over the Project's use of "oil waste water, [and] oil water to irrigate agricultural fields," as well as potential human consumption of water from oil and gas production activities.

Please see Response to Comment 0007-8 and General Response (GR)-1 – Beyond the Scope of the SREIR. The SREIR (August 2020) explains that produced water from oil and gas development activities is treated and conveyed to the water district and blended for irrigation purposes. The sale or transfer of produced water for “domestic use” is defined as water “used for agriculture, irrigation, water replenishment, water banking, livestock, etc.” See SREIR (October 2020), Vol. 1, at 4.17–52. The definition does not include any direct human consumption or direct human contact with produced water, and there are no proposals to use treated produced water for any form of direct human consumption. See SREIR (October 2020), Vol. 1, at 4.17-52–53. Further, the use of treated and produced water for agricultural irrigation can only occur under permits issued by the Regional Water Quality Control Board and is subject to extensive monitoring requirements. See SREIR (October 2020), Vol. 1, 4.9-153–156. There has been no evidence to date of any health or safety issue associated with the use of treated produced water for agricultural irrigation in the Project Area. See SREIR (October 2020), Vol. 1, 4.9-153. Lastly, the SREIR focuses on correcting the specific CEQA deficiencies identified by the Court of Appeal. Slip Opinion, at p. 140. Because the issues identified in the comment do not fall into one of the five issues that the Court of Appeal’s decision addressed, the SREIR was not required to re-open or reanalyze the Project’s water quality impacts.

Public Workshop (August 2020) – Santoyo 1

Comment: My name is Byanka Santoyo and i am resident of Arvin> i am also with the Center Race on Poverty and the Environment. Many scientific studies show that people who live in highly polluted areas like Kern County are also more vulnerable to COVID. Is the county going to study how the significant amount of air pollution that this project will bring will in turn increase the people's risks of contracting life- threatening diseases like COVID?

Response: Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment states that scientific studies show that people who live in highly polluted areas are more vulnerable to the COVID-19 pandemic, and asks whether the SREIR will analyze how air pollution from the Project may increase health risks associated with COVID-19.

Please see Responses to Comments 0007-9, 0009-4, and 0009-99. The SREIR (August 2020) contains an analysis of recent studies relating PM2.5 exposure to COVID-19 mortality, data on the number of infections and COVID-19-related deaths among County residents, and the percentage of infections among different ethnic groups. This analysis was updated in the SREIR (October 2020), Vol. 1, at 4.3-43–44, 4.3-155–156. The SREIR (August 2020) explains that, although PM2.5 emissions from Project implementation will be reduced as much as feasible with implementation of mitigation measures, this impact cannot be mitigated to a less than significant level because the timeline for widespread community immunity to COVID-19 is yet unknown, there is currently no widely available vaccine for COVID-19. Accordingly, the SREIR finds this impact significant and unavoidable even with implementation of MM 4.3-1 through MM 4.3-4, MM 4.3-8, and MM 4.3-6 (which in particular requires applicants to implement all orders related to the COVID-19 pandemic or any other pandemic mandated by the County Public Health Services Department). The

SREIR therefore contains a thorough discussion of elevated risks related to COVID-19 and exposure to PM_{2.5} emissions.

Public Workshop (August 2020) – Trujillo 1

Comment: Mi nombre es Felipa Trujillo y soy residente de Shafter y vivo pocas milas de un poso petroleros. Yo como persona que nomas comprendo el espanol no puedo comprender completamente lo que estan diciendo y participar en el tayer que el condado esta ofreciendo nesecita tener a alguien que este listo para traducir el espanol al ingles y vise versa. El condado va traducir todos los documentos es espanol para que la comunidad comprenda el impacto que 67,000 poso petroleros van a afectar a nuestra comunidad y nuestras familias y la salud de unos? Y tambien porque el Departamento de Planificacion no esta dejando que nosotros como comunidad dejamos comentarios publicos porque es una audencia y es requerido dejar que el publico deje comentarios?

***Comment Translation -** My name is Felipa Trujillo and I am a resident of Shafter and I live a few miles from an oil tanker. I as a person who nomas understand Spanish I cannot fully understand what they are saying and participate in the tayer that the county is offering needs to have someone who is ready to translate spanish into English and see versa. The county will translate all the documents is spanish so that the community understands the impact that 67,000 oil tankers will affect our community and our families and the health of some? And also because the Planning Department is not letting us as a community leave public comments because it is an ailment and is it required to let the public leave comments?

Response: Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment states that, as a Spanish-speaking resident, the commenter was not able to fully participate in the August 17, 2020 public workshop on the Draft SREIR (August 2020). The comment asks whether key documents will be translated into Spanish and whether the Planning Department will allow residents to provide verbal comments at the August 17, 2020 public workshop on the Draft SREIR (August 2020).

Please see Response to Comment Public Workshop (August 2020) – Escoto 1 and General Response (GR)-3 – Public Process. Neither CEQA nor the CEQA Guidelines require lead agencies to translate public notices or portions of environmental documents into non-English languages. However, to foster public participation in the SREIR’s preparation, Spanish translation services were provided via closed captioning and live interpretation at the public workshops on the Draft SREIR (August 2020) and Draft SREIR (October 2020). As noted in GR-3, while the public workshop on the Draft SREIR (August 2020) was not required under CEQA or a public meeting subject to the Brown Act, it was held virtually online consistent with Executive Order N-29-20 and its standards for virtual public participation.

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August 17, 2020, Public Workshop Materials

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Teams Live Event Virtual Workshop Instructions



Introduction: In compliance with the Governor's Executive Order, the California Department of Public Health's guidelines on gatherings regarding COVID-19, and Kern County Local Emergency Declaration, the Kern County Planning and Natural Resources Department, as Lead Agency, is conducting a virtual workshop to facilitate public participation on the Draft Supplemental Environmental Impact Report for Revisions to Title 19 - Kern County Zoning Ordinance (2020-A), for Oil and Gas Local Permitting.

If you are having trouble participating in the Microsoft Live Event, please email Julie Williams at williamsj@kerncounty.com

Meeting Date and Time: Monday August 17, 2020 at 1:30 pm PST

Link to join: <https://tinyurl.com/y53zxcoz>

Spanish Language Translation: Spanish language translation services will be provided in two ways.

Microsoft Live Events Closed Caption – Closed Captions are available in Spanish by clicking on the  at the bottom right of the Presentation Screen. To select Spanish language closed captioning click on the gear icon located next to the closed captioning icon as shown . The County of Kern cannot ensure the accuracy of translation through Microsoft's Live Event closed captioning service.

Live Interpretation via Conference Call – To listen to a Live Interpreter call (872) 240-3212, Access Code: 526-446-645. Attendees may need access to 2 devices to watch the Live Event and listen to the Live Interpretation. Live Interpretation will only be available for Staff's Presentation, no verbal comments will be received during the event, therefore, the Live Interpreter will not have the ability to translate questions or comments from Attendees.

Participating in the Virtual Scoping Meeting

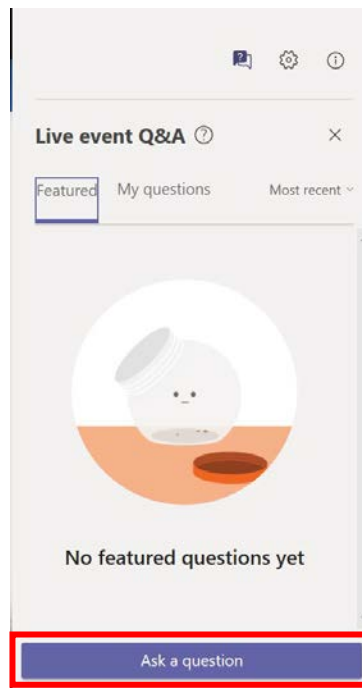
Participating: To join the Virtual Scoping Meeting paste the URL above into your web browser address bar. The URL will direct you to a Microsoft Teams Home Page that will give you the following 3 options: Download the Teams App; Sign-In using your Microsoft Log-In; Join Anonymously. Choose any of these options to join the meeting.

Please note the following:

- The time needed to download the Teams App may vary depending on a number of factors including your internet or data connection speed and the device memory capacity.
- If you have the Teams App already downloaded on your device the meeting will automatically open in your Teams App.
- If joining the meeting from a mobile device, Safari is not a supported browser. We recommend you use an internet connected computer for the best experience.
- For more information about supported browsers, device requirements and more, please visit the Microsoft Office article at the following link: <https://support.microsoft.com/en-us/office/attend-a-live-event-in-teams-a1c7b989-ebb1-4479-b750-c86c9bc98d84>



Commenting: Commenting on the Draft Supplemental Recirculated Environmental Impact Report can be accomplished by providing written comments to Cindi Hoover, Lead Planner, at hooverc@kerncounty.com or by mail at Kern County Planning and Natural Resources Department - 2700 "M" Street, Suite 100, Bakersfield, CA. 93301.

During the virtual Workshop, questions can be submitted via the Q&A tab (shown below) on the "Right Pane" of the Presentation Screen. No verbal comments will be accepted during the virtual Workshop.



FAQs

Q: I don't see the "Ask a Question" Button on the Presentation Screen, how do I ask a question?

A: The "Right Pane" where the Q&A panel is located may not be available in full screen viewing mode. To change from full screen viewing mode press either the Esc key or the minimize arrows  at the bottom right corner. Next click on the Q&A icon  at the top of the "Right Pane". The Q&A Panel should now open.

Q: Is there a limit to how long my question can be using the Q&A Panel?

A: Yes, a maximum of 2,400 characters per question are allowed by Microsoft.

Q: Are questions and comments anonymous?

A: Questions may be submitted anonymously or you may provide your name to show with the question. For more information on using the Q&A tool please visit the Microsoft Teams Support website.

Q: I keep getting a prompt to download the Microsoft Teams App, do I need to download the App?

A: If you are using a supported web browser such as Chrome, Firefox, or Edge you do not need to download the Microsoft Teams App. Please see the Microsoft Live Events support article at the link above for information about supported browsers, and device requirements.

Q: If I already have the Microsoft Teams App downloaded on my device, will the virtual Scoping Meeting Live Event open in my app?

A: Yes, if you have the app the event will open in your Teams App. Be sure you are using the Q&A panel in the "Right Pane" to ask questions or submit your name for the record and not the Teams Chat feature on the left of the screen.

Q: How can I provide verbal comments for the record?

A: Verbal comments on the project can only be accepted during the Planning Commission and Board of Supervisors hearings. If you wish to provide comments on the Draft Supplemental Recirculated EIR during the document comment period you may submit those in writing to Cindi Hoover, Lead Planner, at hooverc@kerncounty.com or by mail to Kern County Planning & Natural Resources Department - 2700 "M" Street, Suite 100, Bakersfield, CA 93301.

**Kern County Draft Supplemental Recirculated
Environmental Impact Report
for Revisions to Title 19- Kern County Zoning Ordinance (2020-A)
Focused on Oil and Gas Local Permitting**



WORKSHOP

STARTS AT 1:30

INSTRUCTIONS : KERNPLANNING.COM

AUGUST 17, 2020

**Kern County Draft Supplemental Recirculated
Environmental Impact Report
for Revisions to Title 19- Kern County Zoning Ordinance (2020-A)
Focused on Oil and Gas Local Permitting**



WORKSHOP
Lorelei H. Oviatt, AICP
Director

Kern County Planning and Natural Resources Department

AUGUST 17, 2020



Participation in this meeting

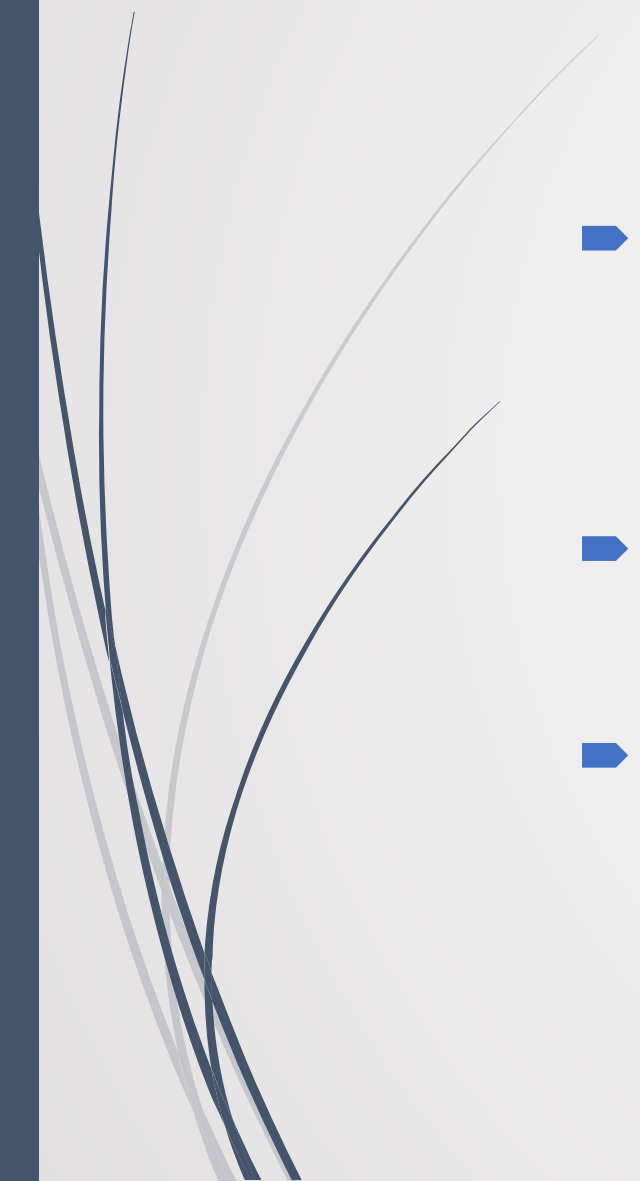
- ▶ The Q & A Button allows you to enter your name with questions.
- ▶ Verbal comments can not be accommodated
- ▶ Problems? Email Julie Williams at williamsj@kerncounty.com
- ▶ Spanish translation is available


Closed Caption – press CC at the bottom right corner of the screen and use the Gear icon next to the CC icon to change the language setting.

Spanish Translation (verbal) can be accessed by calling
(224) 501-3412 Access Code: 408-162-717



Purpose of the Meeting

- Present the Project and
Draft Supplemental Recirculated EIR
 - Review the Structure of the document
 - Present the public process and how to comment
- 

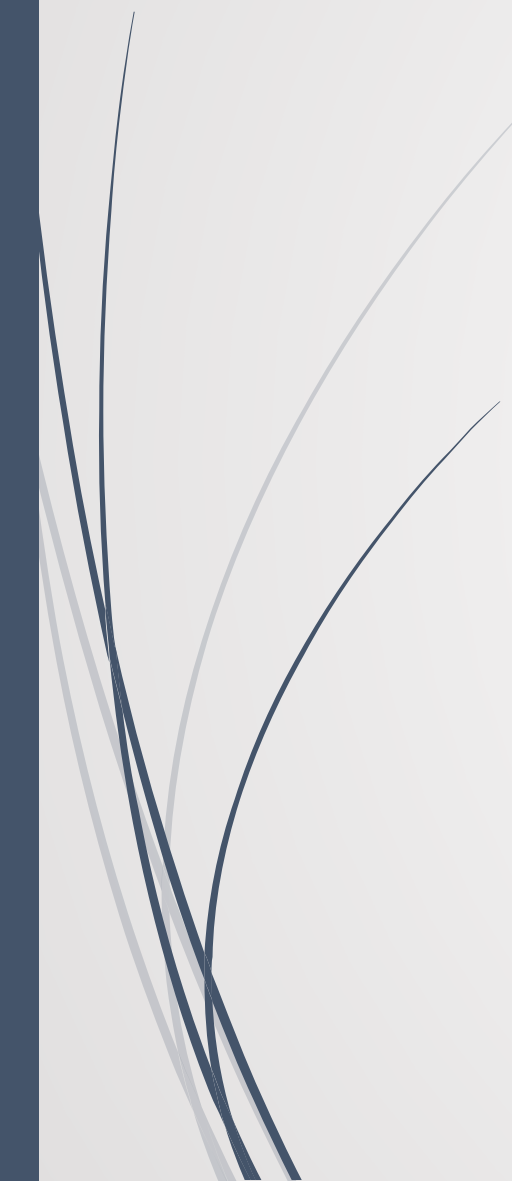


California Environmental Quality Act CEQA

- TO INFORM Decision makers about significant environmental effects
- TO IDENTIFY ways environmental damage can be avoided
- TO PREVENT avoidable environmental damage
- TO DISCLOSE to the public why a project is approved even if it leads to environmental damage



Project Summary

- Revisions to Title 19-Kern County Zoning Ordinance (2020- A) Focused on Oil and Gas Local Permitting
 - 2015 Ordinance and Kern County Oil and Gas Permitting Ended March 26, 2020.
 - Current ordinance has no required local permit, has some development standards and required setback of 150 ft from residences and 300 feet from schools.
 - Environmental review directed by court to address 5 subject areas and reconsider adoption of the Zoning Ordinance by Planning Commission and Board of Supervisors.
- 

SREIR CONTENT

- ▶ New analysis and complete 2015 FEIR and 2018 SEIR
- ▶ Resource Sections on Topic Areas
 1. Mitigation for loss of Agricultural Land
 - 4.2 – Agricultural Resources
 2. PM 2.5 and multiwell Health Risk Assessment
 - 4.3 – Air
 3. Water – Sustainable Groundwater Management Act and supply
 - 4.9 – Hydrology and Water Quality
 - 4.17 – Utility and Public Systems
 4. Noise – impacts on Sensitive Receptors
 - 4.12 – Noise

Structure

- Volume 1 – New Analysis
 - Chapter 1 & 2 – Executive Summary and Introduction
 - Chapter 3 – Project Description (includes Draft Zoning Ordinance)
 - Chapter 4 – Analysis of 5 resource topic areas with numbering that corresponds to sections of 2015 FEIR
 - Review and clarifications of all other mitigation measures (Section 4.18)
 - Chapter 5 – Consequences of Project Implementation
 - Chapter 6 – Alternatives
 - Chapter 7 – Response to Comments – Released after review period
 - Chapter 8 – Organizations and People consulted
 - Chapter 9 – List of Preparers
 - Chapter 10 – Bibliography
 - Chapter 11 – Acroynms and Abbreviations

- Volume 2 – SREIR Appendices

Structure Summary

- ▶ Volume 1 and 2 – 2020 Supplemental analysis
- ▶ Volume 3 to Volume 8
2015 Final EIR and Appendices and 2018 Final Supplemental EIR

Online at <https://kernplanning.com/SREIR2020-oil-gas-zoning-revisions/>




Opportunities to Participate

- ▶ Draft SREIR – 45 days
Review period ends – September 16, 2020
 - ▶ Response to Comments released – Prior to Hearing
 - ▶ Planning Commission – Public Hearing – November 12, 2020
Staff report released – November 6, 2020
 - ▶ Board of Supervisors – Public Hearing – not scheduled yet
 - ▶ Comments can be made throughout the entire process up until the Board of Supervisors votes at the public hearing.
 - ▶ Request to be placed on mailing list
- Cindi Hoover, Lead Planner at hooverc@kerncounty.com



How to Make Comment

- ▶ Written comments can be submitted to the Staff Team Lead Planner at hooverc@kerncounty.com
 - ▶ Submitted by US. Mail or delivery to Kern County Planning and Natural Resources Department 2700 M Street, Suite 100, Bakersfield, CA 93301
 - ▶ Documents can be viewed online at <https://kernplanning.com/> or by appointment.
- 



Further Information

- ▶ Kern County Planning and Natural Resources
<https://kernplanning.com/>
 - ▶ Staff Team Lead Planner for Comments
Cindi Hoover
Email – hooverc@kerncounty.com
Phone – (661) 862-8629
- 

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7.2.3 Federal Agencies

1 Edwards Air Force Base

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From: [PERRY, MICHELLE R NH-03 USAF AFMC 412 TW/XPP](#)
To: [Cindi Hoover](#)
Subject: Notice of Preparation of a Draft Supplemental Recirculated Environmental Impact Report (SCH #2013081079)
Date: Wednesday, July 15, 2020 6:09:47 PM

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Ms. Hoover,

Scott Kiernan at Edwards AFB, has taken a one-year internship to Washington, D.C. Edwards has not yet identified his temporary replacement. I will send you the new POC as soon as one is appointed.

No comments on the subject line topic; no impacts to current operations for Edwards or AF Plant 42.

Thanks much,
Michelle

Michelle Perry
Test & Evaluation Installation Planner
412 TW/XPP
195 E. Popson Avenue
Edwards AFB, CA 93524
Home:

0001-1

0001-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

7.2.4 State Agencies

2 California Department of Conservation

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September 16, 2020

VIA EMAIL: HOOVERC@KERNCOUNTY.COM

Cindi Hoover, Lead Planner

Kern County Planning and Natural Resources Department

2700 M Street, Suite 100

Bakersfield, CA 93301

Dear Ms. Hoover:

SUPPLEMENTAL RECIRCULATED ENVIRONMENTAL IMPACT REPORT FOR REVISIONS TO TITLE 19 KERN COUNTY ZONING ORDINANCE 2020 (A), FOCUSED ON OIL AND GAS LOCAL PERMITTING, SCH# 2013081079

The Department of Conservation (DOC) has reviewed the Draft Supplemental Recirculated Environmental Impact Report (DSREIR) for the proposed revisions to Kern County Zoning Ordinance 2020-A (Project). DOC's Division of Land Resource Protection monitors farmland conversion statewide, provides technical assistance regarding the Williamson Act, and administers agricultural conservation programs. DOC's Geologic Energy Management Division (CalGEM) works to ensure compliance with the California Environmental Quality Act (CEQA) and to document CEQA compliance for all CalGEM permits as part of CalGEM's mission to safeguard the environment, protect public health and natural resources, and advance California's climate and energy goals.

DOC offers the following comments and recommendations with respect to the Project's potential impacts on agricultural land and resources and the proposed changes to mitigation measures following the decision in *King & Gardiner Farms v. County of Kern* (5th Dist. 2020) 45 Cal.App.5th 814.

The County should consider partial mitigation of agricultural conversation. On page 4.2-28 through 4.2-30, the DSREIR discusses the removal of mitigation measure 4.2-1, which mitigates impacts on Prime, Farmland of Statewide Importance, and/or Unique Farmland based on the amount of disturbance of the well construction and related site development. The DSREIR states, "[T]here is no feasible mitigation that can reduce Project impacts to prime farmland, unique farmland, and farmland of statewide importation (Impact 4.2-1), or reduce Project impacts that could convert agricultural land to non-agricultural use (Impact 4.2-5) to a less than significant level."

However, CEQA requires feasible mitigation that lessens a project's impacts, even if reduction to a level below significance is not feasible. Mitigation may also include "compensating for the impact by replacing or providing substitute resources or environments, including through permanent protection of such resources in the form of

conservation easements."¹ The measures contemplated as part of MM 4.2-1, applied where feasible, can lessen or compensate for agricultural conversion. Therefore, DOC recommends that the County consider retaining or amending MM 4.2-1 rather than entirely abandoning it.

MM 4.2-1(c) would partially mitigate conversion of agricultural lands by requiring operators to remove legacy oil and gas production equipment and abandon legacy wells. As the DSREIR states, it may not be feasible to mandate this measure for all operations because not all surface owners' property includes legacy oil and gas equipment, and where legacy equipment exists the applicant operator may not have the right to remove it. In those cases where legacy equipment exists and can be removed, however, the County could consider requiring it.

In addition to legacy equipment removal, the County should consider requiring soil restoration through removing compaction and contaminants, reintroducing soil fertility by planting cover crops, and protecting water rights for lands that have soils that meet the requirements of Prime Farmland and Farmland of Statewide importance as established by the California Department of Conservation, Farmland Mapping and Monitoring Program. In the least, restoring the land to even a fallow agricultural condition will help the health of the soil and local wildlife.

MM 4.2-1(a) and (b) also address the conversion of agricultural land, which represents a permanent reduction in the State's agricultural land resources. DOC advises the use of permanent agricultural conservation easements on land of at least equal quality and size as partial compensation for the loss of agricultural land. Conservation easements are an available mitigation tool and considered a standard practice in many areas of the State. DOC highlights conservation easements because of their acceptance and use by lead agencies as an appropriate mitigation measure under CEQA and because it follows an established rationale similar to that of wildlife habitat mitigation.

Mitigation via agricultural conservation easements can be implemented by at least two alternative approaches: the outright purchase of easements or the donation of mitigation fees to a local, regional, or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural conservation easements. The conversion of agricultural land should be deemed an impact of at least regional significance. Hence, the search for replacement lands should not be limited strictly to lands within the project's surrounding area.

A source that has proven helpful for regional and statewide agricultural mitigation banks is the California Council of Land Trusts. They provide helpful insight into farmland mitigation policies and implementation strategies, including a guidebook with model

¹ Public Resources Code Section 15370, Association of Environmental Professionals, 2020 CEQA, California Environmental Quality Act, Statute & Guidelines, page 284, https://www.califaep.org/docs/2020_ceqa_book.pdf

policies and a model local ordinance. The guidebook can be found at <http://www.calandtrusts.org/resources/conserving-californias-harvest/>

Other feasible mitigation measures should also be considered.

Conclusion

DOC recommends that the County reinstate and modify MM4.2-1, so that it feasibly lessens potentially significant impacts to agriculture land recognized as Prime Farmland, Farmland or Statewide Importance, and Unique Farmland as established by the Department's Farmland Mapping and Monitoring Program. Modification and partial mitigation could adequately address the Project's potential impacts to agricultural land.

Please provide DOC with notices of any future hearing dates as well as any staff reports pertaining to this project. If you have any questions regarding our comments, please contact Farl Grundy, Associate Environmental Planner at (916) 324-7347 or via email at Farl.Grundy@conservation.ca.gov (related to agricultural lands) or Meri Meraz, Associate Environmental Planner via email at Meri.Meraz@conservation.ca.gov (related to oil and gas).

Sincerely,

David Shabazian

David Shabazian, Director

0002-4
Cont'd

0002-5

0002-6

0002-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0002-2

Thank you for your comments. These comments are noted and will be considered by County decisionmakers. Please see Responses 0002-3 through 0002-5 regarding mitigation for impacts to agricultural lands.

Former MM 4.2-1 from the 2015 FEIR, which is discussed in this comment, has been removed. However, that mitigation measure has been replaced by new MM 4.2-1 in the SREIR (October 2020), Vol. 1, at 4.2-31. New MM 4.2-1 provides mitigation for conversion of defined agricultural land by capping disturbance per well at between 1.2 and 3 acres, depending on the Subarea; requiring removal of legacy oil and gas equipment that is within the applicant's control on the same parcel of agricultural land; and prohibiting siting and construction of new disposal ponds on such lands.

The comment is correct that CEQA requires feasible mitigation that lessens a project's impacts, even if reduction to a level below significance is not feasible, as acknowledged in the SREIR (October 2020), Vol. 1, at 4.2-30. However, based on the Court of Appeal's analysis, conservation easements do not provide an effective means of even partial mitigation for agricultural conversion impacts. See SREIR (October 2020), Vol. 1, at 4.2-29–30, and Response to Comment 0004-2. Based on the Court's analysis, it is not possible to reduce a project's impact on agricultural land by requiring a conservation easement because such easements do not offset the loss of agricultural land in whole or in part. Since an agricultural conservation easement does not create new agricultural land to replace the agricultural land being converted to other uses, at the end of each year there would be a net loss of agricultural land equal to the amount converted by the Project, and the Project's significant impact on agricultural land would remain significant despite the implementation of the easement.

0002-3

The comment is correct that not all surface owners' property includes legacy oil and gas equipment, and where such equipment exists the applicant may not have the right to remove it. However, where legacy equipment exists and the applicant does have the right to remove it, such removal would partially mitigate conversion of agricultural lands.

In response to this comment, the SREIR (October 2020) adds new MM 4.2-1.B, which provides that:

No permit for a new well shall be issued if the applicant ~~has owns or controls~~ legacy unused oil and gas equipment on the same legal parcel. An applicant shall be deemed to own or control legacy equipment if, as of the date the application is filed, it is owned by (i) the applicant, (ii) an entity that controls or is controlled by the applicant, or (iii) an entity that has hired the applicant as an independent contractor. The legacy oil and gas equipment shall be removed inclusive of compliance with applicable legal requirements (e.g., well plugging and abandonment requirements under state or federal regulations), and restoration of the surface grade consistent with surrounding lands on the parcel completed before any new well activity can commence. A full plan and details of actions needed to remove the legacy equipment shall be submitted with the site plan, be shown on a detail of the site plan, and be a condition of the approved permit. For farmland parcels in Tier 1, when both the surface and minerals are owned by the applicant, this measure does not apply. SREIR (October 2020), Vol. 1, at 4.2-31.

In addition, discussion of legacy equipment in the SREIR (October 2020), Vol.1, at 4.2-31–33, has been revised consistent with the addition of new MM 4.2-1.B.

As explained in the SREIR (October 2020), Vol. 1, at 4.2-31, within Tier 1, where oil is the predominant land use, and both the surface and the minerals are owned by the applicant, the predominant use of the land is not farmland but productive oil land that is also voluntarily used for agriculture. As the mineral owner at any time can cease leasing the land for agriculture and use it exclusively for oilfield production, the removal of legacy equipment from Tier 1 lands does not promote the restoration of farmland.

In addition to legacy equipment removal, the comment suggests that the mitigation measure require cleanup of soil contaminants and "reintroducing soil fertility by planting cover crops" which would "help the health of the soil and local

wildlife.” New MM 4.2-1 is intended to mitigate the impact of converting defined agricultural land to non-agricultural uses. Where legacy equipment under the applicant’s control is present on the same parcel, MM 4.2-1.B requires removal of that equipment in compliance with applicable legal requirements (e.g., well plugging and abandonment requirements under state or federal regulations) and restoration of the surface grade consistent with surrounding lands. Whether cleanup of contaminants (for which the applicant may not be responsible) is necessary would be determined under applicable law. Impacts on wildlife from ground disturbance are separately mitigated by MM 4.4-16 from the 2015 FEIR (which is not limited to agricultural land), by one or a combination of several measures, including removal of legacy oil and gas equipment in compliance with legal requirements, restoration of the surface grade, and reseeding with native plant species to restore habitat. However, on agricultural lands, soil fertility improvements and crop planting are best managed by the farmers.

The comment also requests that the County consider “protecting water rights for lands that have soils that meet the requirements” of Prime Farmland and Farmland of Statewide Importance. It is not clear what the comment means by “protecting water rights” for such lands, in the context of mitigation for the impact of conversion to non-agricultural uses. In any case, water rights are determined by applicable state law and agreements among rights holders, not by mitigation measures adopted pursuant to CEQA.

0002-4

The comments regarding beneficial aspects of agricultural conservation easements and practices elsewhere in the state are noted. However, based on the Court of Appeal’s analysis, conservation easements do not provide an effective means of even partial mitigation for agricultural conversion impacts. Please see SREIR (October 2020), Vol. 1, at 4.2-29–30 and Responses to Comments 0002-2 and 0004-2.

0002-5

Please see Responses to Comments 0002-2 through 0002-4.

0002-6

The comment requests that the County provide the commenter with notices of future hearings dates and staff reports. The Department of Conservation is on the mailing list for notification as required by CEQA and under State Planning Law for adoption of a zoning ordinance.

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7.2.5 Local Agencies

3 Kern County Public Works Department

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Office Memorandum

KERN COUNTY

To: Planning and Natural Resources
Department
Cindi Hoover

Date: August 7, 2020

From: Public Works Department
Floodplain Management Section
Kevin Hamilton, by Brian Blase

Phone: (661) 862-5098
Email: BlaseB@kerncounty.com

Subject: Supplemental Recirculated Environmental Impact Report
Revision to Title 19

From the information supplied, we have no comments or recommendations regarding the above project.

0003-1

0003-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

7.2.6 Interested Parties

4 Sequoia Riverlands Trust

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September 1, 2020

County of Kern
Planning and Natural Resources Department
Attn.: Lorelei H. Oviatt, AICP, Director
2700 M Street, Suite 100
Bakersfield, CA 93301-2323

RE: Draft Supplemental Recirculated Environmental Impact Report re: Permitting for Oil and Gas Operations

Dear Ms. Oviatt:

I am writing on behalf of Sequoia Riverlands Trust (SRT) to comment on the Draft Supplemental Recirculated Environmental Impact Report (DSREIR) for amendments to the Kern County Zoning Ordinance involving permitting procedures for oil and gas operations. SRT is an accredited, regional land trust that inspires love and lasting protection for important lands, including agricultural land in Kern County.

When the Zoning Ordinance amendments were proposed in 2015, SRT raised concerns about inadequate mitigation measures for impacts to farmland and rangeland.¹ A Supplemental Environmental Impact Report was prepared in 2018, and we again recommended that the County require meaningful mitigation for impacts to rangeland, a particularly pressing need given that the ministerial permitting process established by the Zoning Ordinance amendments would provide little leverage for landowners or easement holders to compel oil companies to minimize the footprint of their operations.² We are writing today because the DSREIR does not remedy these deficiencies, and in fact abandons a highly feasible mitigation measure that would help to counterbalance the cumulative impact of farmland loss.

Agricultural conservation easements have long been used to reduce the impacts of farmland conversion, and were included as part of Mitigation Measure 4.2-1 in the 2015 Draft EIR and 2018 Draft Supplemental EIR. Based on a misreading of the Court of Appeals' statement that

¹ SRT comment letter submitted August 31, 2015.

² SRT comment letter submitted October 4, 2018.

0004-1

0004-2

conservation easements “do . . . not create new agricultural land to replace the agricultural land being converted”³ and therefore do not reduce the impact of farmland loss to a level of insignificance, the DSREIR entirely removes Mitigation Measure 4.2-1.⁴

But it is well-established that “[e]ven when a project’s benefits outweigh its unmitigated effects, agencies are still required to implement all mitigation measures unless those measures are truly infeasible.”⁵ Conservation easements are demonstrably feasible. As an accredited land trust, SRT already holds mitigation easements on 15 properties in Kern County, totaling over 4,200 acres. These easements have helped to counterbalance impacts to habitat and agricultural land in contexts ranging from residential and commercial projects to infrastructure and energy development. We stand ready to work with the County and willing landowners to continue providing this form of mitigation.

The DSREIR appears to rule this out, without addressing the ways that conservation easements partially counterbalance impacts to farmland. A 1:1 mitigation requirement permanently protects an equal amount and quality of farmland to the land being permanently lost. It slows the overall rate of farmland conversion, both by disincentivizing projects that unnecessarily consume farmland, and by providing resources for farmland conservation. Moreover, the capital that a willing landowner receives for selling an easement on his or her property is sometimes what enables that landowner to keep farming. In short, while easements do not create new farmland, they make a meaningful, cumulative contribution to protecting agricultural resources.

This contribution is all the more important given the anticipated impacts of groundwater depletion and Sustainable Groundwater Management Act (SGMA) implementation. A recent study estimates that 500,000 acres of irrigated cropland in the San Joaquin Valley will be converted to less water-intensive uses in the coming decades.⁶ Far from being a reason not to establish conservation easements, as the DSREIR speculates,⁷ a reduction in the amount of viable farmland, coupled with a growing population, will make it essential to conserve as much as possible of what remains.

For these reasons, we respectfully request that the County amend the DSREIR to require all feasible mitigation measures for impacts to farmland and rangeland, including but not limited to Mitigation Measure 4.2-1 and the additional measures suggested in our 2015 and 2018

³ *King and Gardiner Farms, LLC v. County of Kern et al.* (2020), 45 Cal.App.5th 814, 875.

⁴ DSREIR, 4.2-29 – 4.2-30.

⁵ *Sierra Club v. County of Fresno* (2018), 6 Cal.5th 502, 524-25, citing *City of San Diego v. Board of Trustees of California State University* (2015), 61 Cal.4th 945, 967.

⁶ See Hanak, E., Escrivá-Bou, A., Gray, B., Green, S., Harter, T., Jezdimirovic, J., Lund, J., Medellín-Azuara, J., Moyle, P., and Seavy, N. 2019. Water and the Future of the San Joaquin Valley. Available at <https://www.ppic.org/publication/water-and-the-future-of-the-san-joaquin-valley/>.

⁷ DSREIR, 4.2-30.

comments.⁸ We appreciate the opportunity to participate in this process and look forward to your response.

Sincerely,



Cam Tredennick
Executive Director
Sequoia Riverlands Trust

⁸ SRT comment letters submitted August 31, 2015 and October 4, 2018.

0004-1

Thank you for your comments and participation in the public review of the Project and the environmental document. These comments are noted and will be considered by County decisionmakers.

Please see Responses 0004-2 through 0004-5 regarding mitigation for impacts to farmland. The SREIR (October 2020), Vol. 1, at 4.2-31, provides mitigation for conversion of defined agricultural land by capping disturbance for each individual well depending on the location by defined Subarea: Western – 2.0 acres, Central – 3.0 acres, and Eastern – 1.2 acres, requiring removal of legacy oil and gas equipment that is within the applicant’s control on the same parcel of agricultural land, and prohibiting siting and construction of new disposal ponds on such lands.

This comment also states that the SREIR does not remedy deficiencies in the Supplemental Environmental Impact Report prepared in 2018 to evaluate the Project’s impacts on rangeland (2018 SEIR). The 2018 SEIR is included in the SREIR (October 2020), Vol. 8. This comment falls outside the scope of the limited CEQA review required by the Court of Appeal’s decision. Please see Global Response (GR) 1 – Beyond the Scope of the SREIR. The comment refers to comments on the 2018 SEIR and does not raise any new information regarding impacts to rangeland, which are discussed in the 2018 SEIR and the SREIR as an impact category separate from impacts to farmland. The 2018 SEIR was certified by the County Board of Supervisors on December 11, 2018, and was not legally challenged by any party, and the issue of imposing mitigation for loss of rangeland has been fully addressed.

0004-2

The comment states that the SREIR (August 2020) erroneously removed prior MM 4.2-1, which (in part) provided for agricultural conservation easements as a means of mitigating the impact of farmland loss, based on a misreading of the Court of Appeal’s decision. The SREIR (October 2020), Vol. 1, at 4.2-29–30 has an expanded discussion explaining that, based on the court’s analysis, it is not possible to reduce a project’s impact on agricultural land by requiring a conservation easement because such easements do not offset the loss of agricultural land in whole or in part. Since an agricultural conservation easement does not create new agricultural land to replace the agricultural land being converted to other uses, at the end of each year there would be a net loss of agricultural land equal to the amount converted by the Project, and the Project’s impact on agricultural land would remain significant despite the implementation of the easement. Accordingly, under the threshold of significance in the SREIR, conservation easements do not provide an effective means of even partial mitigation for agricultural conversion impacts.

0004-3

The comment states that even when a project’s benefits outweigh its unmitigated effects, agencies are still required to mitigate impacts to the extent feasible. The SREIR (October 2020), Vol. 1, Section 4.2 provides a full explanation of the available mitigation and its feasibility, and imposes all feasible mitigation. The comment regarding beneficial aspects of agricultural conservation easements is noted. However, based on the Court of Appeal’s analysis, conservation easements do not provide an effective means of even partial mitigation for agricultural conversion impacts. See Response to Comment 0004-2.

0004-4

The comment regarding beneficial aspects of agricultural conservation easements is noted. However, based on the Court of Appeal’s analysis, conservation easements do not provide an effective means of even partial mitigation for agricultural conversion impacts. See Response to Comment 0004-2.

0004-5

Please see Responses to Comments 0004-1 through 0004-4. The comment regarding anticipated conversion of irrigated cropland to less water-intensive uses pursuant to the SGMA process is noted. This is consistent with the expectation that the SGMA process will disincentivize individual farmers from entering into agricultural easements that limit uses of land to irrigation-dependent agriculture, as discussed in the SREIR (October 2020), Vol. 1, at 4.2-33. The SREIR (October 2020) has been revised to clarify at 4.2-33 that *“individual land owners can continue to voluntarily enter into these easements for agricultural uses that do not conflict with restrictions on groundwater use,” although “over time this practice is likely to be affected on a County-wide basis as a result of the SGMA process.”* The SREIR does not rely on the anticipated reduction in irrigated cropland as the reason to delete former MM 4.2-1, but responds to the Court of Appeal’s decision regarding the effectiveness of conservation easements as mitigation. See Response to Comment 0004-2.

5 Kern County Cattlemen's Association

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Kern County Cattlemen's Association

P. O. BOX 129 · MARICOPA, CA 93252

Kern County Planning and Natural Resources Department
 Attn: Cindy Hoover, Lead Planner
 2700 "M" Street, Suite 100
 Bakersfield, CA 93301

August 20, 2020

RE: Comments to the Draft Supplemental Recirculated EIR (SREIR) for Revisions to Title 19 – Kern County Zoning Ordinance 2020(A), Focused on Oil and Gas Local Permitting (SCH # 2013081079)

Dear Ms. Hoover:

The Kern County Cattlemen's Association has a membership of over 120 individuals and/or business entities, many of whom earn a living from the production of livestock on vast tracts of grazing property within the Project area covered by the Draft SREIR and are stakeholders who will be significantly impacted by final zoning decisions.

We believe that the 2015 version of the County's Oil and Gas Amendment's dual-track permitting process presented a reasonable balance between the interests of holders of surface and mineral rights, in that it effectively increased the surface owner's leverage in negotiations with the mineral applicant regarding mitigation measures for land and environmental disturbance. Our Association appreciates that the County approved our request to include language in Section 19.98.084 H(2) that confines the scope of biological and cultural surveys to the mineral activity location. We compliment the County Planning Department for their untiring efforts to localize planning decisions to attempt to keep the economy moving. We have no comments to offer for the revisions in the SREIR, however, submit the following comments in reference to certain language in the body of the document.

DRAFT SREIR – SECTION 4.2 Agricultural and Forest Resources "Methodology" (p. 26) Grazing "Bad" vs. Grazing "Good"?

The KCCA respectfully requests that you remove the following unsupported, subjective opinion from the body of the SREIR:

"...grazing itself may be associated with adverse environmental impacts. For example, the Center for Biological Diversity has asserted that the 'ecological costs of livestock grazing exceed that of any other western land use. In the arid West, livestock grazing is the most widespread cause of species endangerment. By destroying vegetation, damaging wildlife habitats and disrupting natural processes, livestock grazing wreaks ecological havoc on riparian areas, rivers, deserts, grasslands and forests alike – causing significant harm to species and the ecosystems on which they depend.' (CBD 2018) Therefore, choosing a significance methodology and threshold that seeks to conserve the maximum number of grazing land acres would not be environmentally beneficial, especially where the same or greater productivity is being attained on a smaller footprint of grazing land, as demonstrated by the historic data discussed herein."

We believe that this unsubstantiated statement was included by mistake. The KCCA is grateful that Kern County's elected officials and planners have long recognized that livestock grazing is an essential habitat tool and not a threat. We believe that statements included in planning documents can be used as a baseline in developing future policy; therefore, it is critically important that these statements are accurate. We ask that you replace the statement above with a summary of the following:

Experts recognize that livestock grazing and its herd movement play a beneficial role in brittle environment stability and productivity. Cattle hooves break up and loosen crusted soils and trample down old plant parts, thereby creating mulch and an ideal seed bed, allowing water to penetrate. Cattle also fertilize the soil through deposits of urine and manure. Cattle grazing encourages plant diversity. When cattle graze down the taller aggressive plants, it prevents them from shading out and overpowering more vulnerable plants, which benefits the wildlife in the biological chain as well. Livestock grazing is key in mitigating the potential for wildfires that can cause harm to life, air, water and property.

No grazing and under-grazing can have adverse impacts on plant diversity, wildlife and their essential needs. "Removal of grazing has been shown to reduce diversity of herbaceous native and exotic plant species, in some cases to the detriment of threatened species that depend on non-grass species." (Weiss 1999, Hayes and Holl 2003, Kelt et al. 2005, Pyke and Marty 2005) The removal of cattle grazing has led to the establishment of a monoculture of plant life.

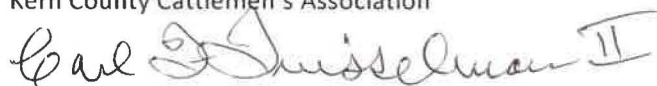
Kern County's ranchers, for as many as eight continuous generations and more, have succeeded in maintaining their businesses because they are excellent managers of their land and animals. Our livestock businesses produce animal protein to meet people's vital nutritional needs as well as provide a source of new wealth for the economy.

Again, we respectfully request that you remove the unsubstantiated anti-grazing comments and replace those comments with statements based on peer reviewed studies that accurately portray the positive benefits that livestock grazing provides to Kern County's physical and economic environment.

Thank you for your consideration of our comments.

Respectfully,

Carl F. Twisselman, II President
Kern County Cattlemen's Association



cc: Kern County Board of Supervisors

Lorelei Oviatt, Director, Kern County Planning and Natural Resources

0005-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0005-2

The comment objects to a statement that "grazing itself may be associated with adverse environmental impacts."

This statement appeared in the Supplemental Environmental Impact Report prepared for analysis of Project impacts on rangeland and grazing lands (2018 SEIR) and was carried forward unchanged in the SREIR. See SREIR (October 2020), Vol. 8, at 4-16 and SREIR (October 2020), Vol. 1, at 4.2-24. The 2018 SEIR quoted a document prepared by the Center for Biological Diversity as evidence that some adverse effects of grazing have been asserted. The 2018 SEIR also discussed the importance of grazing for promoting plant diversity and mitigating wildfire risk. However, the purpose of the 2018 SEIR was to address impacts of oil and gas activity, not impacts of grazing. CEQA requires that all viewpoints be included in the document, which is not creating policy but providing information. The 2018 SEIR did not engage in a comparative evaluation of potential positive and negative environmental consequences of grazing or seek to reach a conclusion on the overall net effect. The comment regarding environmental benefits of grazing, and adverse effects from the absence of grazing or under-grazing, are noted for the record. However, this comment falls outside the scope of the limited CEQA review required by the Court of Appeal's decision. Please see Global Response (GR) 1 – Beyond the Scope of the SREIR. The 2018 SEIR was certified by the County Board of Supervisors on December 11, 2018, and was not legally challenged. This comment is noted and will be considered by County decisionmakers.

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6 Association of Irrigated Residents

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Association of Irrigated Residents
29389 Fresno Ave
Shafter, CA 93263

September 16, 2020

Via electronic email

Kern County Board of Supervisors
Kern County Administrative Office
1115 Truxtun Avenue, Fifth Floor
Bakersfield, CA 93301

Supervisor Mick Gleason (district1@kerncounty.com)
Supervisor Zack Scrivner (district2@kerncounty.com)
Supervisor Mike Maggard (district3@kerncounty.com)
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Kern County Planning & Natural Resources Department
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Cindi Hoover, Lead Planner hooverc@kerncounty.com

Re: Supplemental Recirculated Environmental Impact Report to the Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting (SCH # 2013081079)

To the Kern County Board of Supervisors and Planning Commission:

The Association of Irrigated Residents submits this letter in reference to Kern County's proposed "Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting" (Ordinance).
May 29, 2020

To Whom it May Concern:

It seems that Kern County has very narrowly interpreted the Appellate Court ruling and has limited the scope of further analysis and better mitigation to just a few limited items within the five areas. We disagree with these limits and have broader comments on each area the court found inadequate.

1. Mitigation of Water Supply Impacts

A. If produced water is of sufficient quality to be used for irrigation by agriculture then SGMA must apply to that water. If the water is being used by agriculture without removal of the salts then it is assumed to meet the quality definition where SGMA should apply. Groundwater levels must be measured throughout any oilfield where produced water is used for irrigating cropland or for water banking as done in CAWELO, North Kern Water Storage District, and the Rosedale-Rio Bravo Water Storage District. The average depth to groundwater in these oil fields, especially on the East side of Kern County such as in the Kern River, Kern Front, and Poso Creek oil fields, cannot be allowed to increase over time under SGMA. This higher quality produced water may one day be more valuable than the oil mixed into it. Agricultural entities may one day wish to pump this water for irrigation purposes and dispose of the oil in the most economical way possible. In other words, if the quality of the produced water is good enough for growing crops then SGMA must apply to the oil field producing the water.

B. Any oil company with active oil production within the boundaries of agricultural which use groundwater for irrigation must immediately plug and properly abandon all inactive wells. Inactive wells should be defined as any well sitting unused for a period of ten or more years. The current operator of an oil field must be immediately responsible to properly plug and abandon all idle wells in the oil field where they operate.

C. Any buried or abandoned drilling mud sumps which exist on farmland must be cleaned up. This means buried material must be removed and clean soil similar to surrounding top soil must fill the area. This must be done retroactively and immediately by the current operator in all active oil fields.

D. Open produced water percolation ponds, such as McKittrick 1, 1-3, and 3 operated by Valley Water Management and located within a mile of the intersection of Lokern Road and Hwy 33, and elsewhere where the produced water is in no way suitable as irrigation water because of salt levels or toxic metals, must cease all percolation activity immediately and be closed if there is any evidence of the produced water moving horizontally in a direction towards currently irrigated farmland.

E. Any surface expression or oil leak coming out of the ground in an oil field within 500 feet of a stream, dry stream bed, arroyo, gully, wash, etc., where water runs occasionally, must be stopped immediately by any means necessary including complete cessation of steam injection or steam flooding within 5,000 feet of the leak. Every barrel of fluid coming to the surface in the area defined above and within the boundaries of an active oil field should result in a minimum fine of \$1,000 per barrel which will be used to protect endangered species and enhance their habitat in Kern County.

F. No produced water of any quality should ever be allowed to run down a natural, unlined, drainage channel. Neither should it be allowed to be transported via an unlined dirt canal. All produced water must be conveyed from the wellhead by impervious cement or metal pipeline to where it is cleaned, recycled, used as irrigation water or otherwise disposed.

G. Volatile Organic Compound emissions, including methane, from produced water which is exposed to the air, must be calculated and measured continuously and mitigated for their impact on air quality and/or as a greenhouse gas.

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2. Impacts from PM2.5 emissions

A. The county must look at PM10 emissions as well as PM2.5. All oil field roads carrying oil production related vehicles and machinery must be treated to reduce dust emissions. Some of that dust is PM2.5 which is one reason PM10 must be mitigated as well as PM2.5. We know that disease such as Valley Fever can be carried on dust particles plus these particles are harmful to human health by themselves even without fungus, virus, and bacteria particles attached to them.

B. There are two kinds of PM2.5, direct and secondary. All direct emissions must be mitigated and all precursors of secondary PM2.5 formation must be mitigated. Direct emissions come from all types of combustion, including all vehicles and machinery burning fossil fuel and all boilers burning oil or natural gas. Dust also creates PM2.5. Any type of NOx, SOx, or ammonia emissions must be considered precursors to PM2.5 and mitigated. Since there are a limited number of days when there are violations of the daily PM2.5 Federal Health Standard but severe negative health consequences because of those violations, every oil field operator must make a plan to cut back PM2.5 direct or precursor emissions by 20% for those days when the air district predicts a violation will occur. This would be on any day when the air district predicts the AQI to be Orange or worse. Other required mitigations help reduce overall pollution levels on an annual basis but direct reductions on the worst days is more effective at protecting public health. These reduction plans must be enforced through required reporting of implementation details and inspections. Punitive fines for non-compliance must be in place with the money going for local health care improvements.

C. All current oil pumps outfitted with combustion engines must be converted to electric motors within six months if the electric grid is available within 1500 feet or less. No new oil wells may be installed with internal combustion engines under these conditions.

D. Kern County must ensure that all mitigation for PM2.5 emissions is done in Kern County. We have the highest levels of PM2.5 in the nation. If money is paid to offset PM2.5 pollution in the oil fields, it must be spent in Kern County. If these mitigation funds are paid to the air district for their incentive programs, all the money must be spent in Kern County with no decrease in any other funding that would be spent in Kern by the air district. It is not fair to shift money for air pollution reductions in Kern County to the far less polluted northern end of the San Joaquin Valley under current air district guidelines where money is spent more or less equally throughout the district's eight counties.

E. Emission Reduction Credits authorized by the San Joaquin Valley Air Pollution Control District should not be used to mitigate new sources of PM2.5 in the oil fields. These credits can be over 20 years old so they are meaningless and should not be used. All mitigation for air pollution must take place with real reductions within the county and at the time of the current emissions which are being mitigated.

F. Electrical generation is predominantly by combustion of natural gas in Kern County oil fields. Every oil field should have a photovoltaic installation providing at least 75% of the common, everyday electrical needs of the oil production equipment such as the pumps. This will do three things. 1) it will lessen the need for local electrical generation involving combustion thus improving Kern air quality. 2) It will be cheaper, over time, for oil field costs involving electricity purchased from the grid meaning it will be good for the economy. 3) It will reduce the carbon intensity of oil from Kern County helping to ensure that oil produced in Kern County will be used in California as opposed to the importation of oil from

places like Saudi Arabia which have lower carbon intensity values and thus is more apt to help California meet its greenhouse gas reduction goals. There should be a plan to install solar panels over a reasonable 5 year time frame for every oil field operation in Kern County until the 75% target is met or exceeded. New oil wells should require new solar panels for 100% of their projected lifetime electrical needs.

G. Flaring of gas in oil fields causes PM2.5, NOx, and VOC emissions. Flaring can occur continuously for many hours and even days. Very large volumes of gas can be flared with the excuse that it is uneconomical to collect, clean, and sell the gas. Two things should be required. Flaring should be reduced to a minimum beyond what is required by the air district and flares should consist of mechanical draft enclosed combusters with pollution control equipment. Open flaring should be banned in Kern County. Any new flares should be required to be enclosed and current open flares must minimize their flaring at least 10% from the previous 5 year average for each year they continue to operate or be converted to mechanical draft enclosed combusters. There should also be a mitigation fine based on the quantity of natural gas which is flared. The fine should be at least equal to the retail value of that gas by volume.

3. Mitigation of conversion of agricultural land

A. If drilling is to be permitted on farmland then the farmer or landowner, who may or may not have the mineral rights, can veto the location selected by the oil company for a drilling site. Instead, the farmer may select a corner or edge of their field where irrigation and farming operations will be least interrupted in the judgement of the farmer and within 1500 feet of the oil field operator's desired location.

B. Absolutely no drilling mud pits may be used on farmland.

C. All buried and covered drilling mud pits on farmland which has been returned to the farmer for cultivation and irrigation must have all drilling related material removed and filled with clean dirt suitable for agriculture and similar to the pre-existing soil. If an operator failed to do this in the past and the same operator wishes to drill a new well, or enhance production at a currently active well, then old drilling mud pits or partial pits on land available for farming and used previously by the same operator must be first cleaned and remedied to a condition suitable for agriculture. Only then can new activity in the oil field proceed.

D. All soil around oil wells located on farmland must be kept clean. This means any soil around oil wells which is contaminated with oil or other substances used in oil production or for the purpose of enhancing oil production must be removed at least quarterly and replaced with clean soil.

E. To avoid contamination of the soil around oil wells located on farmland, all wells and pumps must be raised above the level of the surrounding land with concrete pads at least 18 inches high. There should never be a situation where flooding from storms or irrigation causes water to pool within 20 feet of an existing active oil well even if the pump jack or pumping equipment has been removed.

F. No more than one drilling site per 40 acres of farmland. Multiple wells may be drilled at one site but the total area cannot be more than one acre out of 40 acres.

G. Every acre or partial acre used for oil production must be leased from the farmer or landowner with payment equivalent to the expected gross per acre from the adjacent land and crop. In no case should this payment be less than \$2500 per year per acre or partial acre.

H. Farmworkers must be protected from all dangerous oil production activities. Certain activities such as fracking or acid injecting, where a buffer zone for other nearby workers is necessary, need to be arranged at least two weeks in advance with the farmer so that regular farming activities can be planned around that time.

I. Where high pressures (greater than 250 psi) in pipes above ground are used during oil production activities on farmland, there must be clear warning signs about possible dangers for nearby farmworkers and the general public. This should be done where produced water is being injected for disposal or to pressurize the oil field and where natural gas is being injected for storage or disposal. Signs should state the danger, the probable high pressure, and the type of operation taking place with what substances are in the pipes. Signs should be in Spanish and English.

J. Underground pipelines used to carry gas or various fluids from wells to processing sites and vice-versa must be checked for leaks every month. Some leaks are very small and are not immediately detected by pressure drops. Sensitive instruments need to check all pipelines for leaks on farmland at every point of their route.

4. Noise impacts

A. Flaring of gas is the noisiest regular occurrence in oil fields. Flaring can occur continuously for many hours and even days. The noise of a large flare can sound like a jet engine and cause typical noise related problems to nearby residents, students and non-oilfield workers. The noise from a large flare can be noticeable and irritating up to one mile away. Two things should be required. Flaring should be reduced to a minimum beyond what is required by the air district and flares should be mechanical draft enclosed combustion equipment with the best available pollution control equipment (also mentioned in Part 2G above regarding reduction of oil field related PM2.5). Open flaring should be banned in Kern County and phased out over the next ten years.

B. Drilling of oil wells and operations like fracking produce lots of noise any time of the day but for durations of a few weeks to less than one day. Noise barriers should be erected between these activities and any residential, school, or business area within a quarter mile. Temporary insulated walls which are 20 feet in height should reduce this noise significantly.

C. Oil field traffic involving heavy duty trucks should be routed around schools and residential areas and not take roads adjacent to these areas wherever possible. For schools this is important during school hours. For residential areas this needs to be done all day and night.

5. Recirculation of the Multi-Well Health Risk Assessment

The oil industry in Kern County is the number one source of local air pollution. Total oil industry NOx emissions, directly emitted PM2.5, and VOC emissions dominate the stationary source category. The trucks and moving of machinery plus worker traffic are significant sources of total mobile source emissions of NOx, VOC and PM2.5 emissions. The mobile source contribution from oil field production needs to be accurately estimated and mitigated. The health impacts of this air pollution are well known.

The total economic related health costs of not meeting national air quality standards in Kern County is well over \$1 billion per year. What proportion of that cost comes from oil field production and all of the indirect but related activities? This must be considered for the current situation and predicted for any new activity.

Mitigation calculations must include all health impacts on the local population. For these reasons alone the Multi-Well Health Risk Assessment must be recirculated for public review and comment.

Please reject the *Supplemental Recirculated Environmental Impact Report to the Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting (SCH # 2013081079)* as inadequate at this time.

Sincerely,

Association of Irrigated Residents
Tom Frantz, President

0006-27
Cont'd

0006-28

0006-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. Please see Global Response (GR) 1 – Beyond the Scope of the SREIR.

The comment states that the SREIR has narrowly interpreted the California Court of Appeal, Fifth Appellate District’s ruling in *King & Gardiner Farms, LLC v. County of Kern*, and has limited the scope of the analysis and revisions to mitigation measures under the SREIR (August 2020) to only the five areas where the Court found the 2015 FEIR to be deficient. Case No. F077656, Slip Opinion, (Cal. Ct. App. 5th Dist. Feb. 25, 2020), at p. 140.

As noted in GR-1 – Beyond the Scope of the SREIR, the Court of Appeal’s decision upheld the 2015 FEIR against all of the claims raised on appeal except for “five areas in which the EIR did not comply with CEQA: (1) mitigation of water supply impacts; (2) impacts from PM2.5 emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well Health Risk Assessment for public review and comment.” Case No. F077656, Slip Opinion, (Cal. Ct. App. 5th Dist. Feb. 25, 2020), at p. 140. In response to this decision, on May 19, 2020, the County Board of Supervisors rescinded the 2015 FEIR and the Ordinance, reinstated the current ordinance, and directed the County Planning and Natural Resource Department to correct the deficiencies identified in the Court of Appeal’s decision. See SREIR (October 2020), Vol. 1, at 1-2. The SREIR provides additional CEQA analyses to correct the deficiencies found by the Court of Appeal, including additional impact analyses in the areas of agricultural and forest resources (Section 4.2), air quality (Section 4.3), hydrology and water quality (Section 4.9), noise (Section 4.12), utilities and service systems (Section 4.17), and supplemental analyses with clarifications on mitigation measures (Section 4.18). See SREIR (October 2020), Vol. 1, at 1-9. Given that the Court of Appeal’s decision upheld the 2015 FEIR except for the five areas where it was found to be deficient, the SREIR was not required to re-open or reanalyze the Project’s impacts or mitigation measures in areas outside of these deficiencies.

Lastly, the comment notes that the comment includes broader comments on each of the five areas where the Court of Appeal found the 2015 FEIR to be deficient. Each of the comments on these areas has been considered, and written responses are provided in the Responses to Comments that follow.

0006-2

The comment states that if produced water is of sufficient quality to be used for irrigation by agriculture, then the SGMA must apply to that water, especially in areas on the east side of Kern County such as the Kern River, Kern Front, and Poso Creek oil fields. The SREIR (August 2020) contains a detailed discussion of the SGMA process, including the formation of Groundwater Sustainability Agencies (GSAs), Groundwater Sustainability Plans (GSPs), and Management Area Plans within the Project Area. See SREIR (August 2020), Vol. 1, at 4.9-10–15. The SREIR summarizes each of the SGMA GSPs and Management Area Plans adopted within the Project Area, including the identification of the applicable SGMA basins subject to each of these plans and basin-wide coordinated management in accordance with the SGMA. This discussion has been updated in the SREIR (October 2020) to provide additional information about the SGMA process, the role of the GSAs in defining SGMA basin boundaries, and the regulatory requirements for using produced water for agricultural irrigation in the Project Area. See SREIR (October 2020), Vol. 1, at 4.9-10–16 and 4.9-153–156. The SREIR explains that the GSAs have exclusive jurisdiction within each of their applicable boundaries to implement the SGMA, including the identification of groundwater supplies that are within and outside of an SGMA basin. Almost all of the GSPs and Management Area Plans explicitly exclude oil and gas operational areas, and exempted aquifers under the Underground Injection Control (UIC) program from SGMA-regulated groundwater basins. Several identify the potential use of treated and/or blended oil and gas produced water as a potential source of new imported water that would increase available supplies for agricultural irrigation purposes and reduce potential groundwater demand over time. The GSPs and Management Area Plans refer to produced water as an “imported” supply, including from the oil fields mentioned in the comment, because the potential supplies are located outside of the SGMA basin as defined by the GSAs in compliance with the SGMA. Section 4.9.3, Regulatory Setting, Produced Water Reuse for Agricultural Irrigation, in the SREIR (October 2020) discusses the regulatory framework for potential produced water reuse for agriculture, including the creation and operations of a Food Safety Project by the Central Valley Regional Water Quality Control Board (CVRWQCB), the Waste Discharge Requirements that must be issued for any such reuse, the treatment and blending of produced water required to ensure food and agricultural safety and multiple scientific studies assessing the use of produced water for irrigation. See SREIR (October 2020), Vol. 1, at 4.9-153–156. The SREIR contains a thorough discussion of the exclusion of oil and gas oil fields and exempted aquifers from almost all SGMA-regulated basins by the GSAs with the statutory authority to implement the SGMA in the Project Area. Some of the GSPs and Management Area Plans adopted in

the Project Area discuss opportunities for increased use of imported produced water from oil and gas areas of activity located outside of the SGMA basins to augment irrigation supplies. Any such use requires treatment, blending, and similar measures; is dependent on the availability of produced water for importation and the issuance of permits by the CVRWQCB, and is subject to ongoing safety assessments by the CVRWQCB and other researchers. The identification of locations within and outside of SGMA-regulated basins is within the exclusive purview of, and has been properly made by, the Project Area GSAs formed under the SGMA.

0006-3

The comment, under the heading of “Mitigation for Water Supply Impacts,” states that oil companies with active production within the boundaries of agricultural land that uses groundwater for irrigation must plug and abandon all inactive wells, and that the current operator of the oil field must be immediately responsible for plugging and abandoning idle wells. The comment also states that an “inactive” well should be defined as any well that is unused for 10 or more years.

As discussed 2015 FEIR, in the course of 100-plus years of oil and gas operations in the County, numerous wells have been allowed to idle. The existence of such idle wells is not a function of the Project, however, and, pursuant to CEQA, is part of the environmental baseline. See 2015 FEIR, Vol. 3, at 7.2-275. As the California Supreme Court held in *Communities for a Better Environment v. South Coast Air Quality Management Dist.*, “the baseline for CEQA analysis must be the ‘existing physical conditions in the affected area’ ... that is, the ‘real conditions on the ground’.” (2010) 48 Cal.4th 310, 321. “This is so even if the current condition includes unauthorized and even environmentally harmful conditions that never received and, as a result of being incorporated into the baseline, may never receive environmental review.” *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal.App.4th 214, 249, citing *Citizens for East Shore Parks v. State Lands Com.* (2011) 202 Cal.App.4th 549, 561 (explaining that the CEQA definition of the environmental baseline means that some existing environmental conditions may “never receive environmental review”); see also *Banning Ranch Conservancy v. City of Newport Beach* (2012) 211 Cal.App.4th 1209, 1233 (stating that “any illegal activities affecting the baseline environmental condition are best addressed by enforcement agencies”). Therefore, existing idle wells within the Project Area are properly considered part of the environmental baseline for CEQA purposes, not a consequence of the Project.

The plugging and abandonment of wells is regulated under state law pursuant to Division 3, Chapter 1 of the Public Resources Code and regulations administered by the California Department of Conservation, Geologic Energy Management Division (CalGEM). An “idle well” is defined in the Public Resources Code as a well that has not produced oil or natural gas, produced water to be used in production stimulation, or been used for enhanced oil recovery, reservoir pressure management, or injection for 24 consecutive months or more and has not been properly plugged or abandoned. Pub. Res. Code § 3008(d). A “long-term idle well” is a well that has been an idle well for eight or more years. Pub. Res. Code § 3008(e). Pursuant to section 3208 of the Public Resources Code, a well is properly plugged and abandoned when the State Oil and Gas Supervisor has determined that all proper steps have been taken to (i) isolate all oil-bearing or gas-bearing strata encountered in the well, (ii) protect underground or surface water suitable for irrigation or farm or domestic purposes from infiltration or addition of any detrimental substance, and (iii) prevent damage to life, health, property, and other resources. Proper steps include plugging of the well, decommissioning the attendant production facilities, or both, as determined necessary by the Supervisor. Pub. Res. Code § 3228. Before abandoning a well, the owner or operator must file a written notice of intention to abandon the well with the Supervisor or District Deputy. Pub. Res. Code §§ 3229-3232. The Supervisor or District Deputy may order the plugging and abandonment of a well or the decommissioning of a production facility that has been deserted. Pub. Res. Code § 3237. The current operator of a deserted well is generally responsible for the proper plugging and abandonment of the well. Pub. Res. Code § 3237.

Additionally, CalGEM regulations impose specific requirements related to the plugging and abandonment of wells, including coordination of plugging operations with CalGEM, identifying oil-bearing or gas-bearing strata encountered in the well, ensuring that proper materials are used, and inspecting plugging and abandonment operations. See 14 Cal. Code Regs. §§ 1723-1723.8. The SREIR contains a detailed discussion of several of these requirements. See SREIR (October 2020), Vol. 1, at 4.9-149–150. Additionally, CalGEM’s new idle well regulations, which became effective April 1, 2019, impose requirements related to the management and testing of idle wells. See 14 Cal. Code Regs., Division 2, Ch. 4, Subchapter 2. An operator of an idle well is required to either submit an annual idle well fee for each well that was idle at any time in the past calendar year or file an Idle Well Management Plan for the elimination of all of the operator’s long-term idle wells. See Pub. Res. Code § 3206.

As described in the SREIR (August 2020), Section 4.9.3, Regulatory Setting, seeps, spills, or surface expressions from idle and orphan wells are regulated pursuant to the new UIC regulations administered by CalGEM. The SREIR contains a detailed discussion of the UIC regulations, including requirements applicable to plugging and abandonment of wells. See SREIR (October 2020), Vol. 1, at 4.9-147–153. Idle wells are also discussed in the 2015 FEIR, which explains that, while idle wells are

properly considered part of the environmental baseline as noted above, the 2015 FEIR nevertheless describes and analyzes potential impacts associated with future well abandonment and reactivation of idle wells in the Project Area. See 2015 FEIR, Vol. 3, at 7-275—276. In addition, a new idle well process was added in the Revised Amended Ordinance, Section 19.98.145, to help facilitate public involvement, CalGEM enforcement, and applicant accountability, for compliance with CalGEM's idle well regulations. See 2015 FEIR, Vol. 3, at 7-24.

This comment proposes plugging and abandonment of idle wells as "Mitigation for Water Supply Impacts" on agricultural land where groundwater is used for irrigation, and within oil fields. However, it should also be noted that the SREIR (October 2020) adds new mitigation measure, MM 4.2-1.B, requiring removal of legacy unused oil and gas equipment (where legacy equipment is present and the applicant has the right to remove it) as partial mitigation for a different impact, conversion of agricultural land. New MM 4.2-1.B provides:

No permit for a new well shall be issued if the applicant ~~has~~ owns or controls legacy unused oil and gas equipment on the same legal parcel. An applicant shall be deemed to own or control legacy equipment if, as of the date the application is filed, it is owned by (i) the applicant, (ii) an entity that controls or is controlled by the applicant, or (iii) an entity that has hired the applicant as an independent contractor. The legacy oil and gas equipment shall be removed inclusive of compliance with applicable legal requirements (e.g., well plugging and abandonment requirements under state or federal regulations), and restoration of the surface grade consistent with surrounding lands on the parcel completed before any new well activity can commence. A full plan and details of actions needed to remove the legacy equipment shall be submitted with the site plan, be shown on a detail of the site plan, and be a condition of the approved permit. For farmland parcels in Tier 1, when both the surface and minerals are owned by the applicant, this measure does not apply. SREIR (October 2020), Vol. 1, at 4.2-31; see also SREIR (October 2020), at 4.2-31 through 4.2-33 (for a discussion of the new mitigation measure).

As explained in the SREIR (October 2020) at 4.2-31, within Tier 1, where oil is the predominant land use, and both the surface and the minerals are owned by the applicant, the predominant use of the land is not farmland but productive oil land that is also voluntarily used for agriculture. As the mineral owner at any time can cease leasing the land for agriculture and use it exclusively for oilfield production, the removal of legacy equipment from Tier 1 lands does not promote the restoration of farmland.

0006-4

The comment states that any buried or abandoned drilling mud sumps on farmland must be remediated by the current oil and gas operator in all active oil fields.

Like existing idle wells, discussed in Response to Comment 0006-2, existing buried or abandoned drilling mud sumps within the Project Area are properly considered part of the environmental baseline for CEQA purposes, not a consequence of the Project.

As described in GR Water-01 – Disposal into Unlined Ponds and Sumps in the 2015 FEIR. Vol. 3, at 7-290, existing oilfield sumps are subject to CalGEM regulations, including, but not limited to, 14 Cal. Code Regs. §§ 1760, 1770, 1775, and 1776. These regulations include requirements for sump location, construction, and closure. Specifically, section 1770, relating to sump closure, requires that (1) all free fluids be removed from drilling sumps within 30 days after the date the drill rig is disconnected from the well, and (2) all free fluids must be removed from operations sumps within 14 days after the rig removal or from completion of operations, whichever occurs first. See also 14 Cal. Code Regs. § 1776(b) (requiring sumps to be closed in accordance with Regional Water Quality Control Board and Department of Toxic Substances Control requirements).

Project Area oilfield sumps and surface ponds are also regulated by the CVRWQB under state and, where applicable, federal water quality laws and regulations. The SREIR (August 2020) contains a detailed discussion of recent regulatory actions related to drilling mud and drilling fluid discharges to land. See SREIR, Vol. 1, at. 4.9-145–146. State Water resources Control Board General Order 2003-0003-DWQ requires a discharger, at the end of drilling operations, to (a) remove all wastes from the sump, or (b) remove all free liquid from the sump and cover residual solid and semi-solid wastes, provided that representative sampling of the sump contents after liquid removal shows residual solid wastes to be nonhazardous. The SREIR states that the CVRWQCB has issued orders to several operators under Cal. Water Code § 13267, requiring the operators to provide information about discharges of drilling muds into sumps from January 1, 2012, to November 2013, and CVRWQCB staff have informed operators that the Regional Water Quality Control Board may prepare a general order for the discharge of drilling mud and cuttings to drilling mud pits, which would replace coverage under State Water Resources Control Board General Order No. 2003-003. See SREIR (October 2020), Vol. 1, at 4.9-145–146.

Several SREIR mitigation measures address remediation of drilling mud sumps. MM 4.9-3 addresses cleanup of drilling mud sumps in the Project Area, providing that “[a]ny surface ponds or sumps must be cleared of fluids and muds in accordance with the State Water Resources Control Board general order, applicable Water Discharge Requirements and Division of Oil Gas and Geothermal Resources regulations.” See SREIR (October 2020), Vol. 1, at 4.9-178. Similarly, MM 4.1-2 provides: “Earthen sumps used in drilling shall be filled within 90 days after any well has been placed in production (unless such sumps are to be used within six months for the drilling of another well), and any sump used in production shall be filled after its abandonment and restored to a uniform grade within ninety days.” 2015 FEIR, Vol. 1, at 4.1-40.

In addition, although this comment proposes remediation of buried or abandoned drilling mud sumps on farmland as “Mitigation for Water Supply Impacts,” it should also be noted that the SREIR (October 2020) adds a new mitigation measure, MM 4.2-1.C, as partial mitigation for a different impact, conversion of agricultural land. New MM 4.2-1.C provides that, on defined agricultural lands: “Siting and construction of new disposal ponds are prohibited.” See SREIR (October 2020), Vol. 1, at 4.2-31.

0006-5

The comment states that open water percolation ponds containing produced water that is not suitable for irrigation must cease all percolation and be closed if there is evidence that the produced water is moving horizontally toward current irrigated farmland.

Like existing idle wells, discussed in Response to Comment 0006-2, existing buried or abandoned drilling mud sumps within the Project Area are properly considered part of the environmental baseline for CEQA purposes, not a consequence of the Project.

Produced water percolation ponds in the County are regulated by the CVRWQCB. The SREIR (August 2020) contains a detailed description of the State regulatory requirements applicable to the discharge and storage of produced water in percolation and evaporation ponds. See SREIR (October 2020), Vol. 1, at 4.9-146–147. The SREIR notes that the CVRWQCB is evaluating current and past discharges of produced water into surface ponds to determine whether they are permitted and operating in compliance with state regulations. The CVRWQCB has indicated that it will issue enforcement orders to oil and gas disposal pond facilities as necessary to bring them into compliance with applicable laws and regulations. As described in the SREIR, produced water containing concentrations of constituents that exceed water quality objectives will likely be classified as designated waste and will be required to be managed in Class II surface impoundments, which must generally be constructed in locations where site characteristics and containment structures isolate wastes from waters of the state. See SREIR (October 2020), Vol. 1, at 4.9-147.

This discussion of produced water percolation ponds has been updated in the SREIR (October 2020) to describe several new regulatory requirements since 2015 addressing produced water disposal. The CVRWQCB has issued orders to operators under California Water Code § 13267 requiring submittal of a technical or monitoring program report to assist staff in its assessment of potential water quality impacts resulting from discharge. The CVRWQCB also maintains and regularly updates a Produced Water Ponds List, the most recent version of which is dated November 19, 2019. Since 2015, the CVRWQCB has also issued three General Orders imposing new Waste Discharge Requirements for oil field discharges to land, which include requirements related to the potential contamination of soils in produced water ponds. See SREIR (October 2020), Vol. 1 at 4.9-182. The SREIR also includes a detailed discussion of the regulation, monitoring, and continued scientific investigation of produced water reuse for agricultural irrigation. See SREIR (October 2020), Vol. 1 at 4.9-153–156. Furthermore, several studies have investigated the effects of produced water disposal on surface and/or groundwater, and human health, as discussed in the SREIR (October 2020), Vol. 1, at 4.9-184.

0006-6

The comment states that surface expressions or oil leaks within 500 feet of a stream or other place where water runs occasionally must be stopped immediately and by any means necessary. The comment also states that every barrel of escaped fluid should result in a maximum fine of \$1,000 per barrel, which will be used to fund habitat enhancement in Kern County.

As described in Section 4.9.3, Regulatory Setting, of the SREIR (August 2020), surface expressions from wells are currently regulated under CalGEM’s UIC program. See SREIR (August 2020), Vol. 1, at 4.9-152. In April 2019, the California UIC regulations were amended to prohibit any “surface expression” resulting from “underground injection projects.” See 14 Cal. Code Regs. § 1724.11(a). The UIC regulations require the operator to develop a surface expression monitoring and prevention plan, to immediately notify CalGEM if a surface expression occurs, and to immediately cease injection if there is a surface expression within 150 feet of the wellhead. See 14 Cal. Code Regs. § 1724.11(a). Additionally, CalGEM may direct the operator

to cease injection at any injection well, regardless of its distance from the surface expression if the agency finds reason to believe that the injection well is causing or contributing to a surface expression. See 14 Cal. Code Regs. § 1724.11(a). Section 1724.12 of the UIC regulations provides requirements for surface expression containment, including that the existence of a surface expression, “other than a low-energy seep,” violates the general prohibition against underground injection projects resulting in any surface expression.

Surface expressions are addressed in MM 4.8-12 of the SREIR, which requires that cyclic steam injection activities above reservoir fracture levels comply with the terms and conditions of applicable CalGEM site-specific Project Approval Letters for an injection project and appropriate monitoring and response if any surface expressions are observed, and to immediately control any water, steam, or oil flowing from a surface expression, and to remove all discharged material.

The comment also proposes a minimum fine of \$1,000 per barrel for every barrel of fluid coming to the surface in the area defined above and within the boundaries of an active oil field. Current law imposes penalties for spills resulting from surface expression. Pursuant to Public Resources Code § 3236.5(b), the State Oil and Gas Supervisor may impose a civil penalty against operators for violation of the oil and gas conservation laws and implementing regulations, including the regulations governing surface expressions. For example, the civil penalty amount for a well stimulation violation can range from \$10,000 to \$25,000 per day per violation. Pub. Res. Code § 3236.5(b)(1)(B).

0006-7

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment states that produced water should not be allowed to run down a natural, unlined drainage channel or unlined dirt canal, and should instead be conveyed by impervious cement or metal pipeline. Existing CalGEM regulations already impose similar requirements. For example, 14 California Code Regulations § 1771 prohibits an operator from using open unlined channels or ditches to transport oil or water containing oil, “unless provisions are made so that they are not a hazard as determined by the Supervisor.” For a more detailed discussion of the regulation, monitoring and continued scientific investigation of produced water reuse for agricultural irrigation, see SREIR (October 2020), Section 4.9.3, at 4.9-153–156.

0006-8

The comment states that volatile organic compound (VOC) emissions, including methane, from produced water that is exposed to the air, must be calculated and measured continuously and mitigated for in the air quality and/or greenhouse gas impact analyses. As explained in GR-1 – Beyond the Scope of the SREIR, the scope of the Court of Appeal’s decision did not include the analysis or mitigation for VOC emissions or other air quality impacts beyond those related to emissions of particulate matter up to 2.5 microns in diameter (PM_{2.5}) and MM 4.3-8. Thus, CEQA does not require the SREIR to modify the other portions of the air quality impact analysis. Nor does the scope of the Court of Appeal’s decision require any modifications to the greenhouse gas impact analysis.

Nonetheless, the SREIR (October 2020) addresses produced water in multiple places. Produced water can be disposed of in both sumps and pits, and ponds. Sumps and pits refer to an excavated depression in the ground that collects crude oil, produced water, or solids, such as drilling muds or cuttings, in oil producing fields. Drilling sumps and drilling pits refer to the collection of drilling fluids and cuttings which are produced during drilling operations. Operation sumps refer to sumps that are utilized to store fluids and solids that are produced during the life of the operational well, as well as potential workover activities. Sumps and pits are co-located with wellhead sites. Evaporation and percolation ponds refer to a type of storage for produced water, where it is allowed to percolate into the soil and/or evaporate into the air. Ponds are typically centralized facilities that collect fluids from multiple operators at a location that is not related to the location of drilling operations.

The Health Risk Assessments conducted for the Project took into consideration the use of sumps and pits in their analyses as those features are co-located with wellheads and drilling sites. All three Health Risk Assessments included potential fugitive toxic emissions from both a drilling mud sump during drilling operations and a 30-by 30-foot ground level sump that was assumed to exist as part of ongoing oil and gas processing operations. See SREIR (October 2020), Vol. 1, at 4.3-146–152. Emissions from the sump were conservatively assumed to have a continuous VOC release rate of 0.01 pounds per hour. See SREIR (October 2020), Vol. 1, at 4.3-146–152. These VOCs were further assumed to contain potentially toxic compounds typically found in crude oil. The compounds modeled for the sump were: ethylbenzene, benzene, xylene, toluene, cyclohexane, and hexane. See SREIR (October 2020), Vol. 1, at 4.3-146–152. This hydrocarbon sump would be expected to have significantly higher emissions than a produced water disposal pond. Pond facilities were not considered in the Health Risk Assessment analysis because they are not necessarily co-located with a well-head. See SREIR (October 2020), Vol. 1, at 4.3-153.

Regarding general air quality impacts, VOC emissions from sumps, pits, and ponds were not included directly; however, air emissions are either accounted for indirectly or are negligible. Emissions from produced water ponds are negligible because there are not many light end constituents that are volatile, and would be expected to be captured by the 10 percent allowance included in the emissions estimate for permit exempt equipment. See SREIR (October 2020), Vol. 1, at 4.3-111–112. Emissions from sumps and pits would also be expected to be captured by the 10 percent allowance included in the emissions estimate for permit exempt equipment. MM 4.1-3 requires that all surface sumps and ponds be permitted only to the extent authorized by the CVRWQCB (via waver, Waste Discharge Requirements, or other form of authorized written documentation) and must comply with all applicable legal requirements and mitigation measures for sumps serving as storage, percolation, or evaporation ponds for produced water. MM 4.3-8 also requires that Project emissions of reactive organic gas (another name for VOCs) are fully offset. See SREIR (October 2020), Vol. 1, at 4.3-164–165. Thus, the air quality analysis included VOC emissions from these sources and mitigated for any impacts from these emissions.

The greenhouse gas analysis also includes a 10 percent allowance for sources that are exempt from the Mandatory Reporting Rule, and it is expected that this allowance would account for the negligible methane emissions from produced water. See 2015 FEIR Vol. 1, at 4.7-33.

Emissions from produced water are not required to be measured continuously because the SREIR analysis already assumes VOC emissions, analyzes those emissions in both the Air Quality and Greenhouse Gas sections (Sections 4.3 and 4.7, respectively), and mitigates for such emissions.

0006-9

The comment states that the SREIR must consider emissions of particulate matter up to 10 microns in diameter (PM₁₀) emissions as well as PM_{2.5} emissions and consider fugitive dust on oil field roads and the risk of Valley Fever traveling by dust particles. As explained in GR-1 – Beyond the Scope of the SREIR, the scope of the Court of Appeal’s decision did not include the PM₁₀ analysis or any other portion of the air quality analysis or impact determination beyond the analysis of PM_{2.5} emissions. Thus, CEQA does not require the SREIR to modify the other portions of the air quality impact analysis. Nevertheless, the air quality impact analysis considers and fully mitigates for impacts from PM₁₀ emissions due to dust and other activities. See SREIR (October 2020), Vol. 1, at 4.3-88–89, 97 (describing fugitive dust emissions as an included emission source for the air quality analysis utilizing U.S. Environmental Protection Agency predictive emission factor equations to generate fugitive dust assumptions); see SREIR (October 2020), Vol. 1, at 4.3-109 (emissions from construction including PM₁₀); see SREIR (October 2020), Vol. 1, at 4.3-115–116 (describing that mobile source emissions include fugitive dust from on- and off-road travel during operations); SREIR (October 2020), Vol. 1, at 4.3-117 (explaining that fugitive dust emissions from onsite travel were estimated assuming that 90 percent of the onsite travel occurred on unpaved oilfield roads); and SREIR (October 2020), Vol. 1, at 4.3-121 (Table 4.3-26 showing total PM₁₀ emissions from mobile sources). In addition, the Health Risk Assessments conducted for the Project assume sources of fugitive dust as well. See SREIR (October 2020), Vol. 1, at 4.3-144.

Construction activities within the Project Area are also subject to San Joaquin Valley Air Pollution Control District (SJVAPCD) Regulation VIII (Fugitive PM₁₀ Prohibition), which includes Rules 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities), 8041 (Carryout and Trackout), 8051 (Open Areas), 8061 (Paved and Unpaved Roads), and 8071 (Unpaved Vehicle/Equipment Traffic). See SREIR (October 2020), Vol. 1, at 4.3-64–65. Regulation VIII is intended to reduce ambient concentrations of PM₁₀ by requiring actions to prevent, reduce, or mitigate anthropogenic fugitive dust emissions. Applicants must also comply with MM 4.3-2, which requires a Fugitive Dust Control Plan in compliance with SJVAPCD fugitive dust suppression regulations. See SREIR (October 2020), Vol. 1, at 4.3-91–92.

The SREIR also discusses the risk of Valley Fever based on earth-moving activities and fugitive dust and the reduction in risk of Valley Fever due to compliance with Regulation VIII. See SREIR (October 2020), Vol. 1, at 4.3-41–43, 155. The SREIR states that the risks associated with exposure to Valley Fever are significant without mitigation and require implementation of MM 4.3-6, which requires all applicants to include in their Worker Environmental Awareness Programs information on how to recognize the symptoms of Valley Fever and report them to a supervisor, and provide workers exposed to fugitive dust with a filter. See SREIR (October 2020), Vol. 1, at 4.3-159–160.

The suggestion that all oil field roads carrying oil-production-related vehicles and machinery must be treated to reduce dust emissions is unnecessary because all Project activities are already required to comply with the requirements of SJVAPCD Regulation VIII (as explained above) and create and comply with a Fugitive Dust Plan in compliance with those regulations under MM 4.3-2. These requirements reduce impacts from fugitive dust to a level of less than significant with mitigation. See SREIR (October 2020), Vol. 1, at 4.3-92.

0006-10

The comment states that the SREIR must consider and mitigate for all PM_{2.5}, including both direct and secondary emissions. The SREIR explains the sources of PM_{2.5} and the analysis includes all sources of Project emissions of nitrogen oxides, VOCs/reactive organic gases, sulfur oxides, PM₁₀, and PM_{2.5}. See SREIR (October 2020), Vol. 1, at 4.3-14–16 (explaining secondary PM₁₀ and the different types of particulate matter) and SREIR (October 2020), Vol. 1, at 4.3-93 (which explains the sources of PM in the Project Area and calculates both PM₁₀ and PM_{2.5} emissions from all Project activities). The SREIR requires mitigation of these pollutants to net zero via MM 4.3-8, which creates the Oil & Gas Emission Reduction Agreement (OG-ERA). See SREIR (October 2020), Vol. 1, at 4.3-164–165.

The comment also notes that there are a limited number of days when there are violations of the daily PM_{2.5} Federal Health Standard, which is accurate and also demonstrates the SJVAPCD's success in addressing its PM_{2.5} nonattainment status. The SREIR (October 2020), Vol. 1, at 4.3-69–70 discusses the applicable air quality plans for PM_{2.5} in the Project Area. The SREIR also discusses whether the Project would conflict with or obstruct implementation of any of these air quality plans. See SREIR (October 2020), Vol. 1, at 4.3-83–84.

The comment also states that every oil field operator must make a plan to cut back PM_{2.5} emissions by 20 percent on days when the SJVAPCD predicts a violation will occur, which the comment states is any day when the SJVAPCD predicts the Air Quality Index to be orange or worse. The comment suggests that these reduction plans must be enforced through required reporting of implementation details and inspections with fines for non-compliance. First, the agency with authority for managing air quality in the Project Area is the SJVAPCD. The SJVAPCD has authority to set PM_{2.5} emission standards, emission reporting requirements, and penalties for non-compliance with any SJVAPCD rule. The County is not the agency with authority over managing air quality in the San Joaquin Valley Air Basin, nor does it have authority to require currently operating production facilities to meet any requirements related to operations. Second, the Project as defined in the SREIR is future oil and gas operations in Kern County and the SREIR does not address, nor can it legally require mitigation for, current operations that were allowed under the prior "by-right" scheme for oil and gas operations in Kern County. Third, it is not possible for the SJVAPCD or the County to accurately predict which days the Air Quality Index will be orange or worse. Air quality prediction is speculative and inconsistent. To the extent that the comment's suggestion is considered by an agency, it would properly be the SJVAPCD. Finally, it is not feasible to reduce PM_{2.5} emissions by 20 percent immediately on days when the SJVAPCD predicts the Air Quality Index may be orange or worse. In any event, as described above, the SREIR fully analyzes and mitigates to net zero all criteria pollutant emissions, including PM_{2.5}, and thus the suggestion is not warranted.

0006-11

The comment states that all current oil pumps outfitted with combustion engines must be converted to electric motors within six months if the electric grid is available within 1,500 feet or less and that no new oil wells may be installed with internal combustion engines under these conditions. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. Nonetheless, the Project as defined in the SREIR is future oil and gas operations in Kern County and the SREIR does not address, nor can it legally require mitigation for, current operations that were allowed under the prior "by-right" scheme for oil and gas operations in Kern County. The Project thus does not consider regulating currently operating drilling equipment. As to prohibiting the installation of new oil wells with internal combustion engines, this is unnecessary because the SREIR offsets criteria pollutant emissions from Project activities to net zero via MM 4.3-8 and the OG-ERA. See SREIR (October 2020), Vol. 1, at 4.3-164–165. Thus, there is no need to prohibit oil pumps with internal combustion engines within 1,500 feet or less of the electric grid. During the scoping process for the 2015 FEIR, one suggested mitigation measure proposed requiring oil and gas projects to generate their own clean electricity during production using photovoltaic solar, direct line power, or both, to eliminate all needs for operation power diesel generators onsite, thus reducing emissions associated with such generators. As explained on page 4.3-121 of the 2015 Draft EIR, this suggested measure was not included in the Draft EIR because another mitigation measure identified in the Draft EIR (i.e., MM 4.3-8) require emissions of designated criteria air pollutants to be fully offset by funding emission reduction programs in the air basin, obviating the need for mandatory clean energy production. This option was thus eliminated because the SREIR has determined to fully mitigate relevant impacts by other equally or more effective means. Since the SREIR requires Project emissions to be fully offset under MM 4.3-8, it need not include additional mitigation requiring emitters to use clean electricity for a specific percentage of their operational energy needs or for certain sources, as the comment suggests. In addition, this requirement may be infeasible for applicants due to the cost to connect every oil pump to a grid almost a third of a mile away. In many cases, connecting new equipment to the grid may be precluded by lack of sufficient capacity and utility approval for additional load on the transmission line.

0006-12

The comment states that all mitigation for PM_{2.5} emissions must be done in Kern County and that if money is paid to offset PM_{2.5} pollution, it must be spent in Kern County. The comment is referring to MM 4.3-8, which creates the OG-ERA and requires applicants to pay an air emission mitigation fee to the SJVAPCD to fully offset Project criteria pollution emissions.

See SREIR (October 2020), Vol. 1, at 4.3-164–165. The SJVAPCD utilizes the emissions mitigation fee to fund emission reduction projects in the San Joaquin Air Basin, with priority given to projects in Kern County. The SREIR explains that the OG-ERA states that cost-effectiveness should be a key consideration in selecting among emission reduction projects to be funded with mitigation fee monies. See SREIR (October 2020), Vol. 1, at 4.3-135–136. However, the OG-ERA also states that emission reduction projects in Kern County should be prioritized ahead of emission reduction projects elsewhere in the SJVAPCD. See SREIR (October 2020), Vol. 1, App. C. The OG-ERA thus attempts to balance these policy goals by stating that, in selecting emission reduction projects, if Kern County emission reduction projects are not the most cost-effective, then Kern County projects costing up to \$250 more per ton than the most cost-effective emission reduction projects outside Kern County shall nevertheless be selected by the SJVAPCD to spend up to 20 percent of the mitigation fee funds available. If emission reduction projects in Kern County cost in excess of \$250 per ton more than the most cost-effective emission reduction projects in other counties, then those projects outside of Kern County may be selected by the SJVAPCD to achieve the required emission reductions. In this way, the OG-ERA prioritizes emission reduction projects in Kern County, but also strives to achieve the most emission reductions possible with the least money, valuing cost-effectiveness in addition to location of project. Thus, though some mitigation fees will be spent for projects outside of Kern County, attainment of the federal and state standards for criteria pollutants and impacts from criteria pollutant emissions are an area-wide issue beyond the confines of Kern County. Reductions in emissions outside of Kern County can affect and alleviate pollutant levels in Kern County, based on weather, meteorology, topography, and other factors. The SJVAPCD, as the expert agency on air quality, is best placed to decide which emission reduction projects will best help the San Joaquin Valley attain the state and federal PM_{2.5} standards. In addition, the SJVAPCD understands how to most efficiently reduce pollutants with the funds available. To the extent the comment is concerned about localized impacts of PM_{2.5}, the Health Risk Assessments completed for the Project, along with the setbacks required by MM 4.3-5, demonstrate that there will be no adverse health impacts from Project implementation. Further details of the implementation of the OG-ERA are provided in the SREIR (October 2020), Vol. 1, at 4.3-136–139. MM 4.3-8 and the OG-ERA will fully mitigate Project emissions and nothing further is required under CEQA.

0006-13

The comment states that Emission Reduction Credits (ERCs) authorized by the SJVAPCD should not be used to mitigate new sources of PM_{2.5} resulting from the Project. The comment is likely referring to the SREIR analysis of and mitigation of emissions from permitted stationary sources. MM 4.3-1 states that “Consistent with the requirements of the SJVAPCD Regulation II-Permits, the Applicant shall obtain an Authority to Construct permit and a Permit to Operate for any facility or equipment requiring a permit from the SJVAPCD, such as stationary sources required to obtain permits pursuant to District Rule 2010. All emissions increases from permitted equipment shall comply with District Rule 2201.” See SREIR (October 2020), Vol. 1, at 4.3-90. Regulation II, Rule 2010, requires any person constructing, altering, replacing, or operating any source operation that emits, may emit, or may reduce emissions to obtain an Authority to Construct permit or a Permit to Operate. Rule 2201 provides for the review of new and modified stationary sources of air pollution and provides mechanisms (including emission offsets) by which the SJVAPCD can issue permits without interfering with the attainment or maintenance of federal and state standards for criteria pollutant emissions. Rule 2201 ensures no net increase in emissions above specified thresholds from new or modified stationary sources of all nonattainment pollutants and their precursors. Rule 2203 allows emission increases to be reduced by purchasing ERCs—i.e., credits for emission reductions that generally occurred at other facilities at some time in the past. Rule 2203 defines eligibility standards, quantitative procedures, and administrative practices to ensure that ERCs are “real, permanent, quantifiable, surplus and enforceable.” SJVAPCD, Rule 2301, Section 1.1.3.

As explained in the SREIR, air quality in the Project Area is addressed through the efforts of various federal, state, and local government agencies—chiefly, the U.S. Environmental Protection Agency, the California Air Resources Board, and the SJVAPCD. See SREIR (October 2020), Vol. 1, at 4.3-52–71. The SJVAPCD has adopted several air quality attainment plans over the years that identify measures needed to attain both federal and state standards for criteria pollutants, and enforces regulations to ensure that emissions comply, and will not interfere, with the attainment of these standards. See SREIR (October 2020), Vol. 1, at 4.3-52–71. These plans all include SJVAPCD rules that currently in place, such as Rule 2301, allowing the use of ERCs for permitting.

The inclusion of MM 4.3-1 in the SREIR is consistent with the SJVAPCD’s *Final Draft Guidance for Assessing and Mitigating Air Quality Impacts* (Feb. 19, 2015) (GAMAQI), which states:

“The District’s permitting process typically ensures that emissions of criteria pollutants from permitted equipment and activities at stationary sources are reduced or mitigated to below the District’s thresholds of significance. District implementation of New Source Review (NSR) generally ensures that there is no net increase in emissions above specified thresholds from new and modified Stationary Sources for all nonattainment pollutants and their precursors. Permitted sources emitting more than the NSR Offset Thresholds for any criteria pollutant must, in general, offset all emission increases in excess of the thresholds.” (SJVAPCD 2015, p. 88)

“The District’s attainment plans demonstrate that project-specific net emissions increase below New Source Review (NSR) offset requirements will not prevent the District from achieving attainment. Consequently, emission impacts from sources permitted consistent with NSR requirements are not individually significant and are not cumulatively significant.” (SJVAPCD 2015, p.108)

Consistent with the GAMAQI, the Project’s mitigation measures ensure that permitted stationary sources from Project activities comply with Rule 2201 (New and Modified Stationary Source Review) and Rule 2301 (Emission Reduction Credit Banking). Further, pursuant to MM 4.3-8, all criteria emissions not required to be offset under the SJVAPCD’s permitting and new source review regulations will be offset under the OG-ERA or, alternatively, through verified reductions from other applicant sources. See SREIR (October 2020), Vol. 1, at 4.3-164–165. Taken together, these mitigation measures are fully consistent with SJVAPCD guidance for mitigating project-level emissions.

The SREIR also clarifies the current status of the ERC program in the SJVAPCD and states that:

While CARB recently performed an audit of the SJVAPCD ERC Banking Program, CARB did not overturn the program (CARB 2020b, 2020c). Subsequently, the SJVAPCD Board approved staff recommendations to remove Ag-ICE projects from the NO_x ERC equivalency system and to remove orphan shutdown projects from the VOC ERC equivalency system, effective September 17, 2020 (SJVAPCD 2020). This action means that the SJVAPCD cannot demonstrate federal equivalency with the surplus value test for NO_x and VOC and thus any new major source or federal major modification triggering NO_x or VOC offsets under Rule 2201 will require “surplus at time of use” ERCs, which means ERCs must be demonstrated to be surplus at the time an ATC is issued, rather than at the time that the emission reductions began. This process will remain in place until such time that equivalency with the federal program is again demonstrated by the SJVAPCD. This step by the SJVAPCD thus restricts the allowable number of ERCs that are valid for use as offsets in the Valley, but does not change the way that ERCs are used nor does it change permitting requirements under Rule 2201. Thus, permitted stationary sources will only be allowed to move forward and be permitted by the SJVAPCD if emissions are properly offset and if the SJVAPCD approves an ATC, as required by Rule 2201. Therefore, it is reasonable to assume that permitted stationary source emissions will continue to be offset under SJVAPCD rules and reduced or mitigated to below SJVAPCD’s recommended significance thresholds. SREIR (October 2020), Vol. 1, at 4.3-72–73.

The SREIR further explains that thus ERCs are still valid for use in the SJVAPCD for permitted sources and will not inhibit the SJVAPCD’s ability to reach attainment. See SREIR (October 2020), Vol. 1, at 4.3-88, 110. The changes to the SJVAPCD’s ERC program to require surplus at time of use ERCs until such time as equivalency is again demonstrated will ensure that only real, permanent, quantifiable, surplus, and enforceable emission reductions are utilized for permitting projects in Kern County.

Courts have routinely held that lead agencies may rely on regulatory programs that provide assurance that regulatory programs will avoid or reduce significant environmental impacts under CEQA. See, e.g., *Oakland Heritage Alliance v. Oakland* (2011) 195 Cal. App. 4th 884, 906 (“a condition requiring compliance with regulations is a common and reasonable mitigation measure, and may be proper where it is reasonable to expect compliance”); *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal. App. 4th 214, 243. Lead agencies may also assume that other agencies charged with enforcing environmental regulations will do so. *Towards Responsibility in Planning v. San Jose* (1988) 200 Cal. App. 3d 671, 680 (“City is not obliged to speculate about effects which might result from violations of its own ordinances or water quality standards set by other agencies”). Neither the SJVAPCD nor California Air Resources Board have invalidated the ERC program, and thus the SREIR may continue to rely on that program as a valid mitigation measure under CEQA.

0006-14

The comment states that every oil field should have a photovoltaic installation providing at least 75 percent of the electrical needs for oil production equipment. As explained in GR-1 – Beyond the Scope of the SREIR, the scope of the Court of Appeal’s decision did not include mitigation measures for the air quality impact section of the Project analysis other than MM 4.3-8. Thus, CEQA does not require the SREIR to modify any portions of the air quality impact analysis other than those related to PM_{2.5} and MM 4.3-8. Nonetheless, the requirement suggested by the comment was considered in the 2015 FEIR and discussed in comments and responses to comments on the 2015 DEIR. See SREIR (October 2020), Vol. 3, at 4.3-122. The 2015 FEIR assessed whether photovoltaic installation was necessary and determined that this suggested measure was not required since other mitigation measures, e.g., MM 4.3-8, require emissions of designated criteria air pollutants to be fully offset by funding emission reduction programs in the air basin, obviating the need for mandatory clean energy production. This suggested mitigation measure was thus eliminated because the SREIR fully mitigates relevant impacts by other equally or

more effective means. Since the SREIR requires Project emissions to be fully offset, it need not include additional mitigation requiring emitters to use clean electricity for a specific percentage of their operational energy needs. Neither this discussion nor the rejection of this suggestion to require clean energy was challenged in court.

In addition, the 2015 FEIR and the SREIR both considered two renewable energy alternatives, the Wind Energy Alternative and the Solar Energy Alternative. See SREIR, Vol. 3, at 6-14–16; SREIR (October 2020), Vol. 1 at 6-17–20. These alternatives discuss the feasibility of requiring well permit applicants to power all or a portion of well operations with renewable energy sources. Regarding requiring photovoltaic installation for existing oil and gas operations, as explained in Response to Comment 0006-11, the Project only addresses future oil and gas operations and the County has no authority to retroactively impose restrictions on ongoing oil-field operations.

0006-15

The comment states that flaring in oil fields causes PM_{2.5}, nitrogen oxides, and VOC emissions and that flaring should be reduced to a minimum beyond what is required by the SJVAPCD rules, that flares should consist of mechanical draft enclosed combustors, open flaring should be banned, any new flares should be required to be enclosed, and current open flares should be required to minimize their flaring at least 10 percent from the previous five-year average or convert to mechanical draft enclosed combustors. The comment also suggests that there should be a fine based on the quantity of natural gas flared. As explained in GR-1 – Beyond the Scope of the SREIR, the scope of the Court of Appeal’s decision only included the PM_{2.5} analysis as it related to attainment plans and MM 4.3-8. Thus, CEQA does not require the SREIR to modify any portions of the air quality impact analysis other than those related to PM_{2.5} and MM 4.3-8.

Nonetheless, as explained in the SREIR, flares and flaring emissions are subject to SJVAPCD permitting requirements and rules. See SREIR (October 2020), Vol. 1, at 4.3-59. Any source that proposes to include a flare will be required to meet the applicable requirements when obtaining an Authority to Construct permit or a Permit to Operate. The SJVAPCD requires the incorporation of feasible control technology and imposes operating limitations. The SJVAPCD also requires the offsetting of emissions increases. Flares must also comply with SJVAPCD Rule 4311, which limits the emissions of nitrogen oxides, VOCs, and sulfur oxides from flare operations. Each new flare proposed within the jurisdiction of the SJVAPCD will be reviewed by the agency for necessary operating-hours limitations and other appropriate permit restrictions. The SREIR analysis included emissions from flares in its calculation of Project emissions for purposes of criteria pollutant analysis and in the Health Risk Analyses completed for the Project. See SREIR (October 2020), Vol. 1, at 4.3-81, 85, 88, 99–102, 110–112, 146, 149–154. Since the SREIR requires Project emissions to be fully offset under MM 4.3-8 via the OG-ERA and reduces adverse health impacts via MM 4.3-5, it need not include additional mitigation requiring emitters to reduce flaring, modify the type of flares utilized, or impose fines for flaring. Finally, as explained in Responses to Comments 0006-11 and 0006-14, the Project only addresses future oil and gas activities in Kern County, and existing flares and any emissions from them are part of the environmental baseline for CEQA purposes. Thus, these emissions do not need to be offset or mitigated under CEQA.

In addition, flaring in Kern is primarily, if not exclusively, used for safety, not for discarding uneconomical gas as is often the case with flaring in the Bakken shale. Thus, the premise of the comment that very large volumes of gas are flared with the excuse that it is uneconomical to collect, clean, and sell it is false.

0006-16

The comment states that, as mitigation for conversion of agricultural land, the farmer or landowner (who may or may not own the mineral rights) should be able to veto the location selected by the oil company for a drilling site. The comment suggests that “the farmer may select a corner or edge of their field where irrigation and farming operations will be least interrupted in the judgement of the farmer and within 1500 feet of the oil field operator’s desired location.”

The SREIR (October 2020) has been updated to add new mitigation measures for conversion of agricultural land. In addition to new MM 4.2-1.B requiring removal of legacy unused oil and gas equipment (where legacy equipment is present and the applicant has the right to remove it), which is discussed in Response to Comment 0006-2, the new MM 4.2-1.A caps the disturbance of defined agricultural land at between 1.2 and 3 acres, depending on the Subarea, and new MM 4.2-1.C prohibits siting and construction of new disposal ponds on defined agricultural land. See SREIR (October 2020), Vol. 1, at 4.2-31–32.

The comment is correct that farmers may wish to select locations for drilling where irrigation and farming operations will be least interrupted, in the judgment of the farmer. For this reason, a mitigation measure that would require that wells be located in a specific limited area on agricultural operations (i.e., clustering) has been considered but is rejected. On parcels where the underlying geology is amenable to accessing mineral resources by horizontal drilling from wells not located directly above the resource, the surface owner and mineral owner may agree that wells should be clustered within one area of the parcel, to leave the remainder available for agricultural use. There may be less productive areas for farming distributed in

several locations throughout a given parcel, due to variations in soil quality, water supply, slope, drainage, access for farm equipment, past uses of the property, and other factors. The individual farmers are best able to identify the most agriculturally productive configuration of uses on split estate lands. See SREIR (October 2020), Vol. 1, at 4.2-33–35.

However, a mitigation measure that grants farmers the unilateral authority to veto the location of drilling sites would be infeasible on legal, technological, and economic grounds. Under California law, the rights of mineral owners to access minerals through the surface are dominant to the rights of surface owners. See SREIR (October 2020), Vol. 1, at 4.2-35 and 4.2-38–40; see also extensive discussion in GR-4 – Surface Owners and Agriculture, in the 2015 FEIR, Vol. 3, at 7-111–125. Moreover, under constitutional principles, the authority to “control how the owners of mineral rights use and enjoy those rights” cannot be delegated to private parties, such as farmers, by the County. *Vaquero Energy v. County of Kern* (2019) 42 Cal. App. 5th 312, 334. In addition, horizontal drilling to access minerals from other locations not directly above the resource would be technologically and economically infeasible in large parts of Kern County due to geological conditions, as well as exacerbating environmental impacts from increased drilling duration in those locations where geological conditions can accommodate horizontal drilling. These issues are discussed at length in the SREIR (October 2020), Vol. 1, at 4.2-33–41.

0006-17

The comment states that operators must remediate existing buried and covered drilling mud pits on farmland, prior to drilling new wells or enhancing production at currently active wells.

Please see Response to Comment 0006-3. Like existing idle wells, discussed in Response to Comment 0006-2, existing buried or covered drilling mud sumps on farmland within the Project Area are properly considered part of the environmental baseline for CEQA purposes, not a consequence of the Project. Several SREIR mitigation measures address remediation of drilling mud sumps, including MM 4.9-3 and MM 4.1-2, and the SREIR (October 2020) adds new MM 4.2-1.C, which provides that, on defined agricultural lands: “Siting and construction of new disposal ponds are prohibited.” See SREIR (October 2020), Vol. 1, at 4.2-31.

0006-18

The comment states that, to mitigate agricultural land conversion, any soil around oil wells located on farmland that is contaminated by oil or other substances used in oil operations must be removed at least quarterly and replaced with clean soil, and wells and pumps must be at least 18 inches above grade to prevent flooding from storms or irrigation causing water to pool.

The comment provides no explanation of the basis or need for these specific proposed mitigation measures, or of their relationship to the impact of agricultural land conversion. Quarterly removal and replacement of soil during active oil and gas operations would not mitigate the impact of agricultural land conversion to non-agricultural use. Contaminated soil is addressed by MM 4.8-5 (which is not limited to farmland), providing that, if soil contamination is observed or suspected during grading or excavation work, work near the excavation site shall be terminated, the work area cordoned off, and required health and safety procedures implemented, including sampling, analysis, and response if contamination is detected above regulatory limits. MM 4.9-2 requires compliance with stormwater permit requirements, drainage plans, and best management practices to address flooding. MM 4.9-6 requires that all constructed facilities within Special Flood Hazard Areas be elevated or floodproofed in compliance with the requirements and standards found in the Kern County Floodplain Management Code Ordinance and Chapters 19.50 and 19.70 of the Kern County Zoning Code.

0006-19

The comment states that the total area occupied by one well or multiple wells should not exceed a single 1-acre site per 40 acres of farmland. The comment provides no explanation of the basis for the 1-out-of-40-acres cap or discussion of its feasibility.

The SREIR (October 2020) contains a new mitigation measure, MM 4.2-1.A, which provides acreage caps for well sites (including all storage, parking, and oil activities) on defined agricultural land, based on Subarea: no more than 2.0 acres in the Western Subarea, no more than 3.0 acres in the Central Subarea, and no more than 1.2 acres in the Eastern Subarea. These acreage caps, constraining oil and gas activities to a limited area to reduce the impact of agricultural land conversion, are considered feasible based on the analysis of land disturbance presented in Appendix F of the 2015 FEIR. See SREIR (October 2020), Vol. 1, at 4.2-31–32.

Capping oil and gas development at a single 1-acre site per 40 acres of farmland would not be feasible. Accessing minerals throughout such areas from a single site would require extensive horizontal drilling, which is not technologically possible in large parts of Kern County due to geological conditions. Effectively prohibiting feasible access to mineral rights would risk

exposing the County to liability for takings claims. Moreover, where extensive horizontal drilling is geologically feasible, the increased drilling duration would have adverse environmental consequences. These issues are discussed at length in the SREIR (October 2020), Vol. 1, at 4.2-33–41.

0006-20

The comment states that, under the heading of mitigation for conversion of agricultural land, operators must provide payment to farmers equivalent to the expected gross per acre from the adjacent land and crop, and in no case less than \$2,500 per year per acre or partial acre.

The CEQA Guidelines state that “Economic and social changes resulting from a project shall not be treated as significant effects on the environment.” CEQA Guidelines § 15064(e); see also CEQA Guidelines §§ 15131(a), (b), 15382. While economic changes may indirectly result in physical environmental impacts recognized under CEQA (such as “urban blight”), they do not constitute environmental impacts in themselves. CEQA Guidelines § 15064(e); CEQA Guidelines §§ 15131(a), (b), 15382.; see also *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal. App. 4th 1184, 1213 (economic harm to small businesses from a competing “big box” store was not an environmental impact under CEQA). Accordingly, economic harm to farmers is not an environmental impact pursuant to CEQA. Compensation to farmers would not mitigate the physical environmental impact of agricultural land conversion.

0006-21

The comment states that, under the heading of mitigation for conversion of agricultural land, farmworkers must be protected from, and given advance notice of, certain activities such as hydraulic fracturing or acid injecting “where a buffer zone for other nearby workers is necessary.”

Buffer zones for, and notice to, farmworkers would not mitigate the impact of agricultural land conversion to non-agricultural use. The comment provides no evidence of special risks to farmworkers from hydraulic fracturing or acid injection, and does not explain why or what buffer zones would be necessary to protect farmworkers from such activities. As discussed in the 2015 Draft EIR, Vol. 1, at 4.8-6–12, a variety of hazardous and non-hazardous materials are used in well stimulation treatments (WST), including hydraulic fracturing and acid-based WST operations. Most such materials have been determined to have a low hazard potential in terms of toxicity, but certain hazardous components, such as biocides, corrosion inhibitors, and mineral acids, used in very small amounts in the WST process, may present concerns for acute toxicity. The primary concern regarding accidental releases of WST chemicals is risk of contaminating groundwater utilized as a source of drinking water, not health risk to nearby offsite workers such as farmworkers. However, any risk of offsite worker exposure to WST chemicals would also be minimized by proper management and storage of WST chemicals in compliance with CalGEM’s WST regulations and applicable requirements of the Regional Water Quality Control Board, the Department of Toxic Substances Control, the Air Resources Board, the Air Pollution Control District, the Kern County Certified Unified Program Agency and other state and local agencies. If an unauthorized release does occur, the operator must immediately implement its Spill Contingency Plan, notify the appropriate response entities for the location and the type of fluids involved, perform clean up and remediation of the area, and dispose of any cleanup or remediation waste, as required by all applicable federal, state, and local laws and regulations. See 2015 Draft EIR, Vol. 1, at 4.8-22, 76–77.

0006-22

Under the heading of mitigation for conversion of agricultural land, the comment states that warning signs should be provided for farmers and the general public where high pressure pipelines (greater than 250 pounds per square inch) are used in oil production activities on farmland, including produced water and natural gas injection.

Signs warning farmworkers and the public of the presence of high pressure pipelines on farmland would not mitigate the impact of agricultural land conversion to non-agricultural use. Pipeline safety and notice requirements are addressed by numerous mitigation measures, including the following:

MM 4.6-1: Newly installed pipelines subject to 49 Code of Federal Regulations (CFR) Parts 192 and 195 must be engineered and constructed in compliance with the Pipeline Hazardous Materials Safety Administration (PHMSA) pipeline safety regulations. All other newly installed pipelines that transport gas or hazardous liquids must be constructed, tested, operated, and maintained in accordance with good oilfield practice and applicable standards set forth and approved by the State Oil and Gas Supervisor.

MM 4.8-4: Applicants must demonstrate that any pipeline located within 300 feet of a sensitive receptor has been integrity tested within the previous two years. For all waste gas lines less than or equal to 4 inches in diameter, a Pipeline Management Plan must be developed and implemented in accordance with CalGEM regulations, including

leak, repair, inspection and testing history and a description of the testing method and schedule for all pipelines. Applicants must notify the Kern County Public Health Services Environmental Health Division, the surface landowner, and sensitive receptors located within 300 feet, of any hazardous materials/waste release immediately upon discovery; must notify to other applicable agencies as required by law; and must immediately contain the leak (e.g., by isolating or shutting down the leaking equipment), clean up contaminated media (e.g., soils), and repair the leak prior to recommencing operations.

MM 4.8-8(g): When pressure testing is required by State or federal law, the applicant must ensure the integrity of pipelines following specified best management practices prior to pressurizing or re-pressurizing petroleum product pipelines.

MM 4.8-9: The applicant must comply with the pipeline management plan pursuant to CalGEM requirements, including inspection and maintenance requirements.

MM 4.8-10: The applicant must visually inspect all above-ground pipelines for leaks and corrosion at least once per year, comply with pipeline testing requirements and maintain records for County review.

0006-23

Under the heading of mitigation for conversion of agricultural land, the comment states that underground pipelines located on farmland that are used to carry gas or fluids between wells and processing sites must be checked for small leaks every month.

Inspection of underground pipelines would not mitigate the impact of agricultural land conversion to non-agricultural use. However, MM 4.2-2(i) provides that, to protect crops and structures adjacent to oil and gas activities on active agricultural lands, the applicant/operator must comply with the requirement that underground pipelines serving the Project must be periodically inspected and maintained as described in mitigation measures for Hazards. Please see Response to Comment 0006-22 for a summary of pipeline safety mitigation measures and requirements for Hazards, which are set forth in full in Section 4.8 in the 2015 FEIR (and, in some cases, revised for clarification in Section 4.18 of the SREIR [October 2020]). Applicable regulations do not require monthly inspection of underground pipelines.

0006-24

The comment requests additional mitigation to address noise from flaring operations and a phased-in ban of all flaring in Kern County within the next 10 years. A full discussion of flaring operations and the noise effects associated with flaring can be found in the Noise section of the SREIR (October 2020) at 4.12-36 and the Gas Flare Noise Assessment prepared by WJV Acoustics, Inc., entitled "Acoustical Analysis: Gas Flare Noise Assessment, Oil and Gas Development EIR Kern County, California," which is presented in Appendix V-3 of the 2015 FEIR. See SREIR (October 2020) Vol. 7, App. V-3.

Gas flares are utilized for various applications throughout Kern County, with oil and gas operations. Typically, the gas being combusted is considered "associated gas"; i.e., gas that is contained within an oil-producing formation but, due to quality or quantity, may not a viable source of gas. The gas is then burned off through the use of a gas flare. Oil field production flares are also utilized during well drilling and well testing and aid in the determination of viability of an oil well. Since the construction and structural components of flares vary based on intended use, location, and output, associated noise levels can vary widely.

In September 2015, the County's consultant conducted a noise study of five flares in Kern County. One of these flares was operating under highly anomalous conditions due to maintenance activities directing additional associated gas to the flare. The remaining four flares are representative of typical conditions. Measurements were taken in multiple directions to account for localized conditions such as wind or site-specific shielding. Using the loudest observed measurement for each of the four representative flares, the consultant modeled the contours for the various flares using SoundPLAN and the "worst case" assumptions for topography, atmospheric conditions, ground absorption factors, shielding, source height, and receiver height. These assumptions result in a conservative analysis that predicts sound to travel much farther than would be expected in site-specific, "real world" conditions.

Using these "worst case" assumptions, the study found that flare noise was typically below the County's absolute threshold of 65 dB when the sensitive receptor was located between 15 and 141 feet away. Because the Kern County Zoning Ordinance in effect in 2015 already required a setback distance of 150 feet from any dwelling and 300 feet from places of public assembly, institutions, or schools, flare noise under typical operations would already be below the County's absolute noise limit. To address the incremental noise standard, contours for a 5 dB increase over the lowest ambient noise level measured

in the County (44.8 dB) were calculated. Flare noise attenuates to less than 49 dB between 48 and 394 feet away from the source. As operational noise, flare noise is mitigated by MM 4.12-2, which requires a setback of 210 feet from the closest sensitive receptor. At this distance, flare noise generally attenuates to less than 49 dB, resulting in a less than 5 dB increase in even the quietest locations in the Project Area. In more typical areas, where ambient noise approximates the average 54.7 dB, flare noise becomes barely perceptible at 210 feet. Further, under MM 4.12-2, additional attenuation measures are required if a sensitive receptor is located within 198 feet for electric production and 650 feet for diesel production. When sensitive receptors are located within the triggering distances, applicants must implement mitigation to achieve the County's absolute and incremental sound thresholds.

0006-25

The comment requests additional mitigation to address noise effects on residences, schools, and business areas within a quarter mile of well drilling and hydraulic fracturing, as well as temporary sound walls. The SREIR (August 2020) contains a discussion of anticipated construction noise and mitigation to reduce the effects. This discussion has been updated in the SREIR (October 2020) to require an acoustical report and attenuation measures to achieve the County's absolute and incremental noise standards. The triggering distances for this mitigation are based on the 49 dB contour line for the construction activities studied in the SREIR. The 49 dB contour line is based on a 5 dB increase over the lowest measured ambient noise in the Project Area. These distances range from 2,350 to 7,900 feet (0.44 to 1.5 miles). When these distances are achieved, Project noise is reduced to a less than 5 dB increase in even the quietest locations in the Project Area. If necessary to achieve the County's absolute and incremental noise standards, the applicant must implement additional attenuation measures, including temporary sound walls. The SREIR thus contains a thorough discussion of the impacts and mitigation of construction noise.

0006-26

The comment requests that traffic associated with oil and gas activities be diverted away from schools and residences to reduce noise effect. The SREIR (August 2020) utilizes an absolute threshold of 65 dB and an incremental threshold of 5 dB over the existing ambient noise level. A doubling of traffic volumes on a roadway would be expected to result in a 3 dB increase in noise generated by traffic, which is equivalent to the human threshold for perceiving a change in the ambient noise level and which is below the County's incremental noise standard. A Traffic Impact Study and Roadway Assessment for the Project was prepared by Ruettggers & Schuler (2015) to analyze potential impacts of the Project and was included as Appendix W of the 2015 FEIR. See SREIR (October 2020), Vol. 4, App. W. The Project would be expected to generate the equivalent of 19,300 trips per day by 2035, which includes worker trips as well as equipment and material delivery truck trips. These trips would be dispersed across more than 500 roadways within the Project Area, based on historic wellfield production rates. Based on the Project trip generation calculations and distribution as shown in Section 4.16, Traffic and Transportation, of the 2015 FEIR, the Project would not double the traffic volumes on any affected roadways. Therefore, no significant increase in noise levels would occur along area roadways as a result of the Project. The SREIR therefore contains a thorough and appropriate discussion of noise effects from Project-related trips.

0006-27

This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. Emissions of nitrogen oxides, VOCs, and PM_{2.5} from all Project activities are fully accounted and mitigated for in the air quality analysis in the SREIR. See SREIR (October 2020), Vol. 1, Section 4.3. This analysis includes emissions from mobile sources. The underlying assumptions and explanation of the multi-well Health Risk Analysis are provided in the SREIR (October 2020), Vol. 1 at 4.3-152–155 and App. B-1. Please also see Responses to Comments 0008-27 and 0008-58 through 0008-62 for a full explanation of the Health Risk Analysis assumptions and why they represent a conservative scenario of potential future activities relating to multi-well drilling. The multi-well Health Risk Analysis includes a thorough analysis of potential health risk from Project activities and does not need to be recirculated under CEQA.

0006-28

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. See Response to Comment 0007-3.

The comment requests that the SREIR (August 2020) be rejected as inadequate by the County. As noted in Response to Comment 0007-3, after the California Court of Appeal, Fifth Appellate District upheld the 2015 FEIR against all of the claims raised on appeal except for "five areas in which the EIR did not comply with CEQA," supplemental environmental review was undertaken in the SREIRs (August 2020 and October 2020) to address the deficiencies discussed by court. *King & Gardiner Farms, LLC v. County of Kern* (2020) Case No. F077656, Slip Opinion, (Cal. Ct. App. 5th Dist. Feb. 25, 2020), at p. 140. Through the process of preparing, circulating, and responding to public comments on the 2015 FEIR and the SREIRs (August 2020 and

October 2020), the environmental impacts from the Project were fully analyzed. Further, a collection of protective mitigation measures were adopted (and modified) to minimize and avoid such environmental impacts.

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Center on Race, Poverty & the Environment

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September 16, 2020

Via electronic email

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*Re: Supplemental Recirculated Environmental Impact Report to the Revisions to Title
 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting
 (SCH # 2013081079)*

To the Kern County Board of Supervisors and Planning Commission:

The undersigned organizations respectfully submit this letter in reference to Kern County’s proposed “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting” (Ordinance).

As an initial matter, we urge you to take immediate steps to extend the comment period on the draft supplemental recirculated environmental impact report (SREIR) for the Ordinance, and to make the public process accessible in Spanish. Given the magnitude of the industrial activities authorized by the Ordinance and the threat that these activities pose to community members’ health—particularly in the midst of the COVID-19 pandemic—the County’s already overburdened and most vulnerable residents deserve a reasonable opportunity to provide meaningful input on a decision that will disproportionately affect them.

Further, we ultimately urge you to reject this Ordinance. This Ordinance would fast-track the permitting of tens of thousands of new oil and gas wells for the coming decades, without adequate environmental review or mitigation and without further notice to or input from affected

0007-1

0007-2

0007-3

community members. Instead of looking for ways to accelerate oil and gas development and shield it from meaningful environmental review, County leaders should take steps to better protect the health and safety of local communities, to enhance the long-term economic well-being of the County, and to promote a more sustainable future for all of California.

**The County Should Take Immediate Steps to Make the Public Comment Process
Accessible to the Residents Most Affected by the Ordinance**

It was only months ago that the County's earlier approval of this Ordinance and the accompanying environmental impact report (EIR)—written and paid for by the oil industry—were set aside by the Fifth District Court of Appeal (Court). In a decision issued on February 25 and effective on March 26, the Court found that the County failed to adequately disclose or mitigate the significant harms that this Ordinance would bring to Kern County communities' water, air, and health.

Despite these failures to protect community health and resources, County staff released a draft supplemental recirculated EIR (SREIR) within just five months of the court-ordered rescission of the Ordinance and original EIR. The County is now only affording the public the statutory minimum time period to review and provide comments on the SREIR, and the Planning Commission is scheduled to make a recommendation to the Board of Supervisors on the Ordinance, on or around November 12. This attempt to railroad this approval process to quick completion with minimal time and means for Kern communities to participate—when those communities are dealing with life-threatening crises including the COVID-19 pandemic and wildfires surrounding the County—is unacceptable.

Although residents already face great difficulty in learning about and participating in the approval process for important proposals such as this Ordinance, County staff have shown little interest in hearing from the community. In fact, staff have made it extraordinarily difficult for the public to participate in this process. In both the May 13 scoping meeting and the August 17 public workshop, County staff expressly prohibited the public from sharing verbal comments, and instructed the public to only ask written questions via an online platform. Even more concerning, County staff also have failed to provide any notices or sections of the SREIR in Spanish, despite the fact that over 39% of County residents speak Spanish, and that at least 16% of residents cannot speak English or do not speak it well or very well. Materials should be made available in Spanish because Latinx community members, including many Spanish speakers, disproportionately live in close proximity to oil and gas operations in the County.¹

¹ See, e.g., Natural Resources Defense Council, Drilling in California: Who's at risk? (October 2014), <https://www.nrdc.org/sites/default/files/california-fracking-risks-report.pdf>.

We believe that you understand the importance of creating a genuine and accessible public participation process for this Ordinance so that the diverse communities whom you represent can meaningfully provide input on it. We also know that Kern County has the ability to allow Spanish-speaking residents, low-income residents, and residents who do not have access to the Internet to participate. For example, the Planning Department has provided both English and Spanish versions of several notices and other documents related to various community development programs.²

Consequently, the County can and must take the following steps to allow Spanish-speaking residents to participate meaningfully in the public process for this Ordinance:

- Reissue and republish the notice of availability of the SREIR in Spanish;
- Translate all other current and future notices related to the Ordinance into Spanish, including notices of public meetings or hearings, and notices of determination (if applicable);
- Translate into Spanish and post, at a minimum, the executive summary, project description, and sections on air quality, water quality (“hydrology and water quality” and “utilities and services systems” chapters), cumulative impacts, and alternatives of the SREIR—which, along with any other translated sections, should be posted at least 45 days prior to the close of an extended public comment period;
- Provide two-way simultaneous interpretation for public meetings and hearings;
- Accept, consider, include in the record, and respond to verbal comments as well as written comments, made in Spanish as well as English; and
- Translate into Spanish any findings or statement of overriding considerations adopted by the Board of Supervisors (if applicable).

Additionally, we strongly recommend that you work with staff to extend the public comment period, and to extend the overall timeline for your consideration of this Ordinance to the end of 2022, or at least until the current public health crises subside and the public can meaningfully participate.

The County Should Reject the Ordinance

Apart from the manifest need for the County to make its public comment process accessible to the most affected residents, we separately urge the Planning Commission and Board of Supervisors to reject this Ordinance. The Ordinance undermines sound government decision

² See, e.g., Public Notice: County of Kern Consolidated Plan for FY 2020-21 Through 2024-25, FY 2020-21 Annual Action Plan for Community Development Programs and Substantial Amendments to County’s Citizen Participation Plan (Spanish (Revised)),

https://psbweb.co.kern.ca.us/planning/pdfs/comdev/Con_Action_Plan_PubNotice_Spanish.pdf;

Kern County Planning and Natural Resources Department, Community Development: New Items/Public Notices/Applications, <https://kernplanning.com/community-development-2/>.

making and public transparency by attempting to greenlight tens of thousands of new oil and gas wells—and all associated infrastructure—on the basis of one high-level and inadequate review. The SREIR wholly neglects to analyze or mitigate the site-specific impacts of oil and gas development in the County, and yet the Ordinance and SREIR purport to deprive community members of any future notice or opportunity to comment when site-specific permits are issued. Rather than blindly fast-tracking more harmful oil and gas development, the Planning Commission and Board of Supervisors should adopt measures that improve health and safety protections for local communities already threatened by oil and gas operations, and pave the way for a just transition to a more secure and sustainable economic base for Kern County.

0007-7
Cont'd

Oil and gas drilling already harms the health of far too many residents in Kern County, especially in low-income communities of color. Research shows that the closer people live to oil and gas wells, the more likely they will be exposed to toxic contaminants in air and water and the more elevated their risk of associated health effects, including but not limited to increased risk of asthma, premature births, high-risk pregnancies, and cancer.³ Indeed, two important studies released earlier this year on the effects of oil and gas drilling—specifically in California—both found a significant association between nearby oil and gas production and adverse birth outcomes.⁴

0007-8

Even though Kern County residents already breathe some of the worst air quality in the country, the Ordinance and SREIR aim to make it quicker and easier for new drilling to commence, threatening increased toxic air pollution that would exacerbate existing health harms. The SREIR also proposes to encourage oil and gas operators to reuse their wastewater for irrigation and domestic use, which likewise threatens increased health risks by forcing families to consume contaminated water and food. Rather than perpetuating and deepening existing health hazards posed by the oil and gas industry, the County should institute a 2,500-foot setback to protect homes, schools, and other sensitive locations from nearby drilling, and take other affirmative steps to reduce the harmful impacts of drilling on local communities and the environment.

The COVID-19 pandemic has highlighted just how deadly pollution from oil and gas extraction is, and it has made the need for protection all the more urgent. Multiple studies have found that exposure to higher amounts of air pollution also increases a population's vulnerability to the coronavirus. Most notably, a major Harvard University study of air pollution and COVID-

0007-9

³ See, e.g., Shonkoff, Seth .B.C. & Hill, Lee Ann L, Human health and oil and gas development: A review of the peer-reviewed literature and assessment of applicability to the City of Los Angeles (2019), <https://www.psehealthyenergy.org/wp-content/uploads/2019/08/Literature-Review.pdf>.

⁴ Gonzalez, David J.X. et al., Oil and Gas Production and Spontaneous Preterm Birth in the San Joaquin Valley, CA, Environmental Epidemiology 4:e099 (2020), https://journals.lww.com/environepidem/FullText/2020/08000/Oil_and_gas_production_and_spontaneous_preterm.1.aspx;

Tran, Kathy V. et al., Residential Proximity to Oil and Gas Development and Birth Outcomes in California: A Retrospective Cohort Study of 2006-2015 Births, Env'tl. Health Perspectives (June 3, 2020), <https://ehp.niehs.nih.gov/doi/10.1289/EHP5842>.

19 mortality in the United States found that exposure to even a small increase in fine particulate matter (PM_{2.5}) is linked to an 8% greater chance of dying from COVID-19.⁵ The misguided nature of the Ordinance and SREIR—which encourages more drilling and air pollution, including in close proximity to communities—is all the more apparent given that Kern County’s Black and Brown residents are more likely to live near oil wells,⁶ and more likely to get sick or die from COVID-19.⁷

0007-9
Cont'd

The Ordinance also seeks to further entrench the County’s oil and gas industry when it is clear that the County’s long-term economic interests will be better served by cleaner and more sustainable development. The oil and gas industry in California has been in decline for many years. The COVID-19 crisis has accelerated this trend, particularly as the economic downturn combines with the industry’s history of debt accrual and mismanagement. This is not the time to incentivize new or additional drilling, especially given the series of major, costly spills that occurred in Kern County in 2019, as well as the documented risk of operators evading their legal obligation to pay for well clean-up, through bankruptcy proceedings or other means. Instead of continuing to promote this costly industry, the County should explore ways to create jobs for workers through oil well remediation and investing in efforts to diversify the County’s economy. These efforts are critical to a thriving economic future in Kern County.

0007-10

Finally, fast-tracking thousands of new oil and gas wells per year also would be a disaster for California’s climate future. California is experiencing extreme heatwaves and some of the worst fires in recorded history. These events are fueled by fossil fuel production and the resulting greenhouse gases emitted into our atmosphere. Continued oil and gas development will only accelerate and worsen the effects of climate change on public health, the economy, and our collective future.

0007-11

For all of these reasons, the Ordinance is wrong-headed and should not be adopted.

0007-12

Your consideration of these comments is much appreciated.

Sincerely,

1. Saul Ruiz, Comité Lost Hills En Accion
2. Jose Mireles, Comité Progreso de Lamont
3. Oralia Alvarez, Comité Rosas Wasco

⁵ Wu, Xiao et al., Exposure to air pollution and COVID-19 mortality in the United States: A nationwide cross-sectional study. <https://projects.iq.harvard.edu/covid-pm/home>.

⁶ See, e.g., Natural Resources Defense Council, Drilling in California: Who's at risk? (October 2014), <https://www.nrdc.org/sites/default/files/california-fracking-risks-report.pdf>.

⁷ See, e.g., California Department of Public Health (June 3, 2020). State Officials Announce Latest COVID-19 Facts (News Release No. NR20-111), <https://www.cdph.ca.gov/Programs/OPA/Pages/NR20-111.aspx>.

4. Estela Escoto, Committee for a Better Arvin
5. Gema Perez, Greenfield Walking Group
6. Anabel Marquez, Committee for a Better Shafter
7. Gloria Herrera, Delano Guardians
8. Ruth Martinez, Comite Si Se Puede de Ducor
9. Tom Frantz, Association of Irrigated Residents
10. Chelsea Tu, Center on Race, Poverty & the Environment
11. Rosanai Paniagua, LOUD For Tomorrow (L4T)
12. Riddhi Patel, Sunrise Kern
13. Ruth Martinez, Comite Si Se Puede de Ducor
14. Nayamin Martinez, Central California Environmental Justice Network
15. Emma De La Rosa, Leadership Counsel for Justice and Accountability
16. Catherine Garoupa White, Central Valley Air Quality Coalition
17. Greg Ardoin, Our Revolution Kern County
18. Maricela Mares-Alatorre, El Pueblo para el Aire y Agua Limpia de Kettleman City
19. Nataly Santamaria, Visión y Compromiso
20. Kevin Hamilton, Central California Asthma Collaborative
21. Daniel O'Connell, Central Valley Partnership
22. Dwight Ewing IV, Merced Bicycle Coalition
23. Samuel Molina, Mi Familia Vota
24. LaTisha Harris, Mothers Out Front Fresno
25. Sylvia Chi, Asian Pacific Environmental Network
26. Marce Gutierrez-Graudins, Azul
27. Neena Mohan, California Environmental Justice Alliance
28. Bahram Fazeli, Communities for a Better Environment
29. Rabeya Sen, Esperanza Community Housing Corporation
30. Veronica Wilson, Labor Network for Sustainability
31. Jazmine Johnson, Physicians for Social Responsibility-Los Angeles
32. Nancy Treviño, Presente.org
33. Kobi Naseck, VISIÓN (Voices in Solidarity Against Oil in Neighborhoods)
34. Gordon Nipp, Sierra Club
35. Hollin Kretzmann, Center for Biological Diversity
36. Colin O'Brien, Earthjustice
37. Ann Alexander, Natural Resources Defense Council
38. Laura Neish, 350 Bay Area
39. Alan Weiner, 350 Conejo / San Fernando Valley
40. Emily Williams, 350 Santa Barbara
41. Nicole Kemeny, 350 Silicon Valley
42. Sherry Lear, 350 South Bay Los Angeles
43. Alison Waliszewski, 5 Gyres Institute

44. Crisantema Gallardo, 99 Rootz
45. Frances Aubrey, Alameda County Interfaith Climate Action Network
46. Barbara Sattler, Alliance of Nurses for Healthy Environments
47. Kevin Koenig, Amazon Watch
48. Marj Plumb, Breast Cancer Action
49. Nancy Buermeyer, Breast Cancer Prevention Partners
50. Jane Williams, California Communities Against Toxics
51. Lizbeth Ibarra, California Youth vs Big Oil
52. Linda Rudolph, Center for Climate Change and Health
53. Mallory Cremin, Citizens Climate Lobby, Idyllwild Chapter
54. Cynthia Mahoney, Citizens' Climate Lobby - Contra Costa County
55. Jesus Alonso, Clean Water Action
56. Duncan McFetridge, Cleveland National Forest Foundation
57. Wendy Ring, Climate 911
58. Ashley McClure, Climate Health Now
59. Bill Magavern, Coalition for Clean Air
60. Loren Mindell, CSEA Chapter 289, Santa Barbara City College
61. Pamela Flick, Defenders of Wildlife
62. Carolyn Scarr, Ecumenical Peace Institute/Clergy and Laity Concerned
63. Bill Allayaud, Environmental Working Group
64. Alexandra Nagy, Food & Water Watch
65. Sandy Emerson, Fossil Free California
66. Brook Lenker, FracTracker Alliance
67. Leatra Harper, FreshWater Accountability Project
68. Nicole Ghio, Friends of the Earth
69. Kathy Kerridge, Good Neighbor Steering Committee
70. Caroline Henderson, Greenpeace USA
71. Joseph Weinberger, Healers For Climate Justice LA
72. Ellen Gorbunoff, Indivisible Beach Cities
73. Doug Bender, Indivisible South Bay Los Angeles
74. Will McGarvey, Interfaith Climate Action Network of Contra Costa County
75. Shula Green, LA Forward
76. Rebecca August, Los Padres ForestWatch
77. Pat Carlone, Marin Interfaith Climate Action
78. Adelita Serena, Mothers Out Front Capital Region
79. Sandy Naranjo, Mothers Out Front San Diego
80. Maia Piccagli, Mothers Out Front San Francisco
81. Susan Butler-Graham, Mothers Out Front Silicon Valley
82. Mark Rose, National Parks Conservation Association
83. Collin Rees, Oil Change International

84. Stiv Wilson, Peak Plastic Foundation
85. Matthew Baker, Planning and Conservation League
86. Amar Patel, Ravi and Naina Patel Foundation
87. David Braun, Rootskeeper
88. Seth Steiner, Safe Energy Now North County
89. Elaine Maltz, San Diego 350
90. Emiliano Campobello, Santa Barbara Standing Rock Coalition
91. Martha Camacho-Rodriguez, SEE-LA (Social Eco Education-LA)
92. Jack Eidt, SoCal 350 Climate Action
93. Claire Broome, St Mary Magdalen Parish Peace and Justice Committee
94. Wilder Zeiser, Stand.earth
95. Shoshana Wechsler, Sunflower Alliance
96. Graham Hamilton, Surfrider Foundation
97. Yonah Bookstein, Tekia
98. Ellie Cohen, The Climate Center
99. Jackie Nuñez, The Last Plastic Straw
100. Sam Pearse, The Story of Stuff Project
101. Michal Lynch, Women's March Santa Barbara

cc:

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0007-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response.

0007-2

This comment is noted for the record. See Global Response (GR) 3 – Public Process.

The comment requests that the County extend the comment period on the SREIR (August 2020) and make the public process accessible in Spanish. The comment also states that, in light of the COVID-19 pandemic, County residents deserve an opportunity to provide meaningful input on the Project and the SREIR. The Planning and Natural Resources Department responded to this request to extend the comment period and explained that the process provides for comments to be accepted throughout the public process, by letter on August 13, 2020, attached to Comment 0013.

As noted in GR-3 – Public Process, the County provided 45-day public comment periods for both circulations of the SREIR (August 2020 and October 2020). Neither CEQA nor the CEQA Guidelines require the extension of public comment periods beyond the 45-day period required under CEQA. In addition to these comment periods, numerous opportunities for public participation in the SREIR preparation process are being provided. On May 13, 2020, pursuant to CEQA Guidelines § 15082(c)(1), the Planning and Natural Resources Department conducted a duly-noticed virtual scoping meeting, at which the staff solicited responses to the publicly released Notice of Preparation. On August 17, 2020, and October 10, 2020, the department hosted virtual public briefing workshops to provide an overview of the SREIR with an additional opportunity for public comment.

These workshops were conducted online in compliance with the Governor’s Executive Order (EO) N-29-20. On March 17, 2020, Governor Newsom issued EO N-29-20 to provide flexibility for agencies to conduct public events in light of the COVID-19 pandemic and social distancing recommendations. The EO authorizes agencies “to hold public meetings via teleconferencing and to make public meetings accessible telephonically or otherwise electronically to all members of the public seeking to observe and to address the local legislative body or state body.” EO N-29-20, Paragraph 3. The public comment periods on the SREIR (August 2020 and October 2020) and the corresponding public workshops were conducted in full compliance with applicable legal and regulatory standards.

The comment also requests the County to make the public process for the SREIR (August 2020) accessible in Spanish. As explained in GR-3 – Public Process, neither CEQA nor the CEQA Guidelines require agencies to translate notices or any portion of environmental review documents into non-English languages. However, to support public participation in the SREIR’s preparation process for the County’s Spanish-speaking residents, the County offered Spanish translation services at both the virtual scoping meeting on May 13, 2020, and the virtual SREIR workshop on August 17, 2020. At both workshops, the County provided options for Spanish language translation through closed captioning and live simultaneous interpretation via conference call. The County provided these access opportunities beyond what is required by law to ensure that the County’s Spanish-speaking residents could participate in these virtual workshops on the SREIR. The workshop presentation emphasized that written comments can be submitted in any language and that full translation and oral comment opportunities with Spanish translation will be provided at the Planning Commission and Board of Supervisors hearing on the Project.

The procedural steps described above complied with all applicable requirements under CEQA to ensure that responsible and trustee agencies, stakeholders, organizations, and local residents had an adequate opportunity to (i) participate in scoping, (ii) review and submit comments on the SREIR (August 2020 and October 2020), and (iii) be fully informed of the County’s decision-making process. The process is in full compliance with all applicable CEQA requirements for public participation, as well as with EO N-29-20’s standards for holding virtual public workshops. As comments will be accepted on the Project and the CEQA document up until the Board of Supervisors takes action at the noticed public hearing, no extension of the 45-day comment period is warranted.

0007-3

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response.

The comment requests that the County take steps to better protect the health and safety of local communities, to enhance the long-term economic well-being of the County, and to promote a more sustainable future for all of California. The Ordinance and accompanying mitigation measures require implementation of dozens of new measures to protect human health and the environment, and compliance with the Ordinance is mandatory. The SREIR considered the alternative of requiring a conditional use permit for each oil and gas permit, and determined that this was environmentally inferior to the proposed Ordinance. See SREIR (October 2020) Vol. 1, at 6-24–26. The appellate court decision also upheld the legal adequacy of the alternatives considered in the 2015 FEIR, and reconsideration of the conditional use permit alternative is outside the scope of the appellate court decision.

The comment also requests that the County reject the Project, asserting that it will fast-track the permitting of tens of thousands of new oil and gas wells for the coming decades, without adequate environmental review, mitigation, or input from the community. As a preliminary matter, the comment's statement that the Project would be approved without adequate environmental review or mitigation is inaccurate and not based on fact. In 2015, the County comprehensively considered the environmental impacts of the Project and developed a conservative and protective suite of mitigation measures, all of which were adopted in an extensive mitigation monitoring and reporting program. The mitigation measures are designed to cover the entirety of the Project's impacts, incorporating conservative assumptions and requirements that would not otherwise be available through well-by-well or piecemeal environmental review. After the California Court of Appeal, Fifth Appellate District, upheld the 2015 FEIR against all of the claims raised on appeal except for "five areas in which the EIR did not comply with CEQA," the County undertook supplemental environmental review in this SREIR to address the deficiencies found by the Court of Appeal. *King & Gardiner Farms, LLC v. County of Kern* (2020) Case No. F077656, Slip Opinion, (Cal. Ct. App. 5th Dist. Feb. 25, 2020), at 140 (Slip Opinion). Thus, through the process of preparing, circulating, and responding to public comments on the 2015 FEIR and the SREIR, the County fully analyzed the environmental impacts from the Project and adopted (and modified) a collection of protective mitigation measures to minimize and avoid such environmental impacts.

The comment requests that the County reject the Project based on concerns regarding protection of communities from environmental impacts and climate change. Prior to the adoption of the Ordinance on November 9, 2015, the majority of oil and gas activities in the County were "as of right" uses, meaning they were subject to County regulations and state permitting requirements, but not County-level land use authority. That ordinance is now back in place due to the court decision, and while oil and gas operations continue, new permitting has no comprehensive environmental review, no oversight by the County, and no mitigation for the impacts on air quality.

Reasons for not rejecting the Project were discussed in the 2015 FEIR's analysis of the "No Project Alternative." See the 2015 FEIR, Vol. 3, at 7-356; citing CEQA Guidelines § 15126.6(e). As explained, the 2015 FEIR rejected the No Project Alternative as environmentally inferior to the Project. See 2015 FEIR, Vol. 3, at 7-356; citing CEQA Guidelines § 15126.6(e). The reason for this is that the Project substantially revises the Ordinance "to update and extend to *all* Project Area oil and gas exploration and production facilities development standards and conditions," which were designed specifically to avoid or minimize environmental impacts associated with pre-drilling exploration, well drilling, and operations. See 2015 FEIR, Vol. 3, at 7-356; citing CEQA Guidelines § 15126.6(e); (emphasis in original). The Project's development standards and conditions include several new requirements that are more protective of the environment and human health and safety than under the County's existing regulations, including a new "Oil and Gas Conforming Review" procedure for all future well approvals. See 2015 FEIR, Vol. 3, at 7-356; citing CEQA Guidelines § 15126.6(e). Lastly, because the mitigation measures under the 2015 FEIR and the SREIR are consistent with, or more protective than, mitigation measures under state standards (i.e., Senate Bill 4 EIR), the Project offers more protective measures for new oil and gas development than would apply if the Project was rejected by the County.

0007-4

This comment is noted for the record. See GR-1 – Beyond the Scope of the SREIR and GR-3 – Public Process.

First, the comment states that the 2015 FEIR was set aside by the Fifth District Court of Appeal, which found that the County failed to disclose or mitigate "significant harms that [the Project] would bring to Kern County communities' water, air and health." As noted in GR-1 – Beyond the Scope of the SREIR, the Court of Appeal's decision upheld the 2015 FEIR against all of the claims raised on appeal except for "five areas in which the EIR did not comply with CEQA: (1) mitigation of water supply

impacts; (2) impacts from PM2.5 emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well Health Risk Assessment for public review and comment.” Slip Opinion, at 140.

In response to this decision, on May 19, 2020, the County’s Board of Supervisors (Board Resolution 2020-116) rescinded the 2015 FEIR and Ordinance, reinstated the current ordinance, and directed the Planning and Natural Resources Department to correct the deficiencies identified in the Court of Appeal’s decision. See SREIR (October 2020), Vol. 1, at 1-2. The SREIR provides additional CEQA analyses to correct the deficiencies found by the Court of Appeal, including additional impact analyses in the areas of agricultural and forest resources (Section 4.2), air quality (4.3), hydrology and water quality (4.9), noise (4.12), utilities and service systems (4.17), and supplemental analyses with clarifications on mitigation measures (4.18). See SREIR (October 2020), Vol. 1, at 1-9.

The comment claims the County has attempted to “railroad” the approval process of the SREIR (August 2020) and the Project, giving minimal times for County residents to participate, especially in light of the COVID-19 pandemic and other crises. As explained in GR-3 – Public Process and Response to Comment 0007-2, the public process for the Project has resulted in two circulations of the SREIR that have been prepared and circulated for public comment. Both the SREIR (August 2020) and SREIR (October 2020) were subject to separate 45-day public comment periods. The SREIR (August 2020) was subject to duly-noticed public scoping meeting and a public workshop. No EOs or any other legal authorities require the County to extend the environmental review or public participation processes for SREIRs beyond what is currently required under CEQA. At all times, the County adhered to Governor Newsom’s EO N-29-20 and its standards for holding virtual public hearings in light of the COVID-19 pandemic. Thus, the process has not been rushed in providing for public comment or public participation processes of the SREIR (August 2020 or October 2020), but has taken careful measures to ensure that residents were afforded the fullest opportunity to participate in this public process during these unusual circumstances.

0007-5

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response.

The comment states that at both the May 13, 2020, scoping meeting and the August 17, 2020, public workshop on the SREIR (August 2020), County staff prohibited the public from sharing verbal comments, but permitted written questions via an online platform. The comment also states that the County failed to provide any notices or sections of the SREIR in Spanish, despite the fact that over 39 percent of the County residents speak Spanish, and that materials should be available in Spanish.

First, the County has held duly-noticed scoping meetings and public workshops on the SREIR (August 2020) and SREIR (October 2020) in compliance with EO N-29-20. The EO authorizes agencies “to hold public meetings via teleconferencing and to make public meetings accessible telephonically or otherwise electronically to all members of the public seeking to observe and to address the local legislative body or state body.” EO N-29-20, Paragraph 3. Neither EO N-29-20 nor the Brown Act specifies a specific means by which the public must submit public comments, nor do these authorities prohibit agencies from requiring public comments to be submitted in writing or “chat” form via the teleconference or videoconference technology, as opposed to oral comments. Rather, the Brown Act requires that agencies provide “an opportunity for members of the public to *directly address* the legislative body on any item of interest to the public, before or during the legislative body’s consideration of the item.” Gov’t Code § 54954.3(a) (emphasis added).

Second, neither CEQA nor the CEQA Guidelines require a lead agency to translate public notices or environmental review documents into Spanish or any other language.

In ruling on the 2015 FEIR, the Court of Appeal confirmed that the County was not required to translate public notices or the FEIR’s executive summary into Spanish, or to provide Spanish-language interpreters at public meetings related to the EIR. Slip Opinion, at p. 122–126. After reviewing provisions of CEQA and the CEQA Guidelines, the Court found that “applicable law contains no express requirements for interpreters or translation of documents,” and “such a mandatory requirement cannot be implied [citing CEQA § 21083.1].” Slip Opinion, at p. 125. Therefore, “CEQA, the Guidelines, and other applicable laws did not require the County to provide interpreters or translations of documents.” Slip Opinion, at p. 125. Further, no provisions in CEQA nor the CEQA Guidelines require lead agencies to translate documents into Spanish or any other language. For example, CEQA § 21003(b) provides that CEQA documents should be “organized and written in a manner that will be meaningful and useful to decisionmakers and to the public.” CEQA Guidelines § 15123(a) provides that the EIR must contain a summary of the proposed action and its consequences, and the summary should be written in language which “should be as clear and simple as reasonably practical.” See, e.g., CEQA Guidelines § 15201 (providing that “[p]ublic participation is an essential part of the CEQA process”); CEQA Guidelines § 15002 (describing CEQA’s general public information and disclosure

purposes). However, consistent with CEQA § 21083.1, which provides that CEQA and the CEQA Guidelines “shall not [be] interpret[ed]... in a manner which imposes procedural or substantive requirements beyond those explicitly stated,” these general public participation and drafting provisions cannot be read to imply a translation requirement that is not explicitly stated.

Nor does California case law support a requirement to translate documents into Spanish or another language. California courts have consistently interpreted CEQA’s “plain language” requirements to ensure that CEQA documents are informative and comprehensible, but have not required that they be translated. “The message of this regulatory scheme is clear: an EIR in this state must be written and presented in such a way that its message can be understood by governmental decisionmakers and members of the public who have reason to be concerned with the impacts which the document studies.” *San Franciscans for Reasonable Growth v. City and County of San Francisco* (1987) 193 Cal.App.3d 1544, 1549. This case does not stand for the proposition that the County must translate the SREIR into non-English languages.

The California Legislature has recognized that statutory changes would be necessary to add a translation mandate to CEQA, as reflected in several unsuccessful bills that would have required translation of CEQA documents. Most recently, Senate Bill 950 (2019-2020 Reg. Sess.), which would have required the Office of Planning and Research to develop requirements for translation of certain CEQA “notices and other documents” into non-English languages spoken by a “substantial number of people” served by the lead agency, failed passage in the Senate Environmental Quality Committee in May 2020.

Previously, the California Legislature did pass Assembly Bill 2447 (2017-2018 Reg. Sess.), which would have required translation of certain CEQA notices into specifically defined “threshold languages” prevalent in the area in which a project is located; and Assembly Bill 543 (2013-2014 Reg. Sess.), which would have required the Office of Planning and Research to develop guidelines for when a lead agency must translate CEQA notices into non-English languages. However, the Governor vetoed both bills. As a result, no such translation requirement is currently in effect, and such legislative efforts would be unnecessary if, as commenters suggest, lead agencies already were required to translate CEQA documents.

Lastly, in addition to requesting that the County translate and republish notices and portions of the SREIR in Spanish, the comment requests that the County provide “two-way” simultaneous interpretations for public meetings and hearings. It should be noted that the County did offer Spanish translation services at the virtual scoping meeting on May 13, 2020, and the virtual public workshop on August 17, 2020, for the SREIR (August 2020). At these meetings, the County provided options for Spanish language translation through closed captioning and live interpretation via conference call. See Gov’t Code § 54954.3(b)(2)-(3) (authorizing local agencies to equate time for English and non-English public comments if the “agency utilizes simultaneous translation equipment in a manner that allows the legislative body of a local agency to hear the translated public testimony simultaneously”). The workshop presentation emphasized that written comments can be submitted in any language and full translation and that oral comment opportunities with Spanish translation will be provided at the Planning Commission and Board of Supervisors hearing on the Project.

0007-6

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response.

The comment urges the County to extend the public comment period of the SREIR (August 2020), and the overall timeline for the County’s consideration of the Project, to the end of 2022, or at least until the current public health crises have subsided.

Please see GR-3 – Public Process and Responses to Comments 0007-2 and 0007-5, above. The County has provided adequate time and opportunity for the public to participate in the process of preparing issuances of the SREIR (August 2020 and October 2020) and has conducted all public meetings concerning the SREIR in adherence with EO N-29-20 and its standards for virtual public hearings in light of the COVID-19 pandemic.

0007-7

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response.

The comment states that the SREIR neglects to analyze or mitigate site-specific impacts of oil and gas development in the County and deprives community members of future notices or opportunity to comment on site-specific permits.

As noted in the 2015 FEIR, it is true that the Project consists of zoning amendments that would facilitate oil and gas development through a streamlined regulatory process with the application of environmental protections that, in many cases, will authorize new development without additional environmental review. See 2015 FEIR, Vol. 3, at 7-95. The County lacks the resources to process potentially thousands of oil and gas Negative Declarations or EIRs each year, and doing so would be impractical. See 2015 FEIR, Vol. 3, at 7-95. Moreover, individualized reviews would be highly repetitive, as thousands of Negative Declarations and EIRs would re-analyze the same impacts and prescribe the same mitigation for each new well or group of wells proposed in the County. See 2015 FEIR, Vol. 3, at 7-95.

Rather, while streamlining may avoid individualized, site-specific CEQA reviews, it is not analogous to a “shortcut” around environmental review. As the 2015 FEIR explained, the Project significantly increases the County’s oversight over oil and gas activities that were traditionally allowed “by right,” and both the 2015 FEIR and the SREIR (August 2020 and October 2020) include conservative and protective mitigation measures to protect communities. See the 2015 FEIR, Vol. 3, at 7-95. Also, because the analyses of Project impacts in both the 2015 FEIR and the SREIR (August 2020 and October 2020) are based on conservative assumptions, the predicted level of Project-related impacts is more severe than is likely to occur under actual Project conditions. In other words, under the Project, applicants are required to mitigate the “worst case” impacts even if they won’t individually cause or contribute to every impact analyzed under the 2015 FEIR and the SREIR (August 2020 and October 2020). See the 2015 FEIR, Vol. 3, at 7-98. For these reasons, the 2015 FEIR and the SREIR (August 2020 and October 2020) contain sufficient discussion of how the streamlined approval processes under the Project are more conservative and protective of the environment than the individualized review recommended in the comment.

Lastly, the comment also urges the County to adopt measures that improve health and safety for local communities instead of the Project. See Response to Comment 0007-3, above. The 2015 FEIR and the SREIR (August 2020 and October 2020) sufficiently disclose and discuss how the Project will offer more protective measures for new oil and gas development than would otherwise apply if the Project was rejected by the County.

0007-8

The comment states that research shows that close proximity to oil and gas wells results in elevated risk of various health effects. The potential health risks from oil and gas activities were fully analyzed in the SREIR (August 2020), Vol. 1, at 4.3-122–137, which discussed the three Health Risk Assessments conducted for the SREIR, potential risks due to COVID-19, and potential premature birth impacts from exposure to oil and gas wells. Even the most conservative Health Risk Assessment, the multi-well assessment, which assumed that forty-eight 13,000-foot wells would be drilled in concentric circles around a sensitive receptor, found that risk would be below the San Joaquin Valley Air Quality Management District threshold of 20 in 1 million, as it would result in potential risk of 9.3 in 1 million. See SREIR (October 2020), Vol. 1, at 4.3-131–133. The SREIR (August 2020) also discussed the Gonzales et al. (2020) study cited in the comment, noting that it was not able to account for other sources of air pollution in the study region, did not account for other contributors to preterm birth besides air pollution, and did not measure actual exposure. See SREIR (August 2020), Vol. 1, at 4.3-134–135.

A fuller discussion of Gonzales (2020) and the other study cited by the comment (Tran et al. 2020), and a discussion of other studies addressing potential health effects of proximity to oil and gas wells, has been incorporated into the air quality chapter (Section 4.3) of the SREIR (October 2020), Vol. 1, at 4.3-28–41 to provide full public disclosure of the Project’s potential impacts on the environment. As explained in the SREIR (October 2020), Vol. 1 at 4.3-29, Tran (2020) conducted a retrospective cohort study of almost 3 million births from 2006 to 2015 to mothers living within 10 kilometers of at least one production well in the Sacramento Valley, San Joaquin Valley, South Central Coast, and South Coast Air Basin. Prenatal exposure to active oil and gas production was associated with various adverse birth outcomes, with the strongest associates occurring with exposure to high production volume in rural areas. However, the authors based their analysis on total production volume and did not directly measure environmental impacts such as via air or drinking water monitoring. Further, the authors did not measure maternal occupation, housing quality, indoor air quality, dependence on groundwater sources for drinking water, or a host of other potential factors. In Gonzalez (2020), the authors conducted a case-control study of preterm births in San Joaquin Valley between 1998 and 2011 and found evidence that exposure to oil and gas well sites in the first and second trimesters is associated with increased odds of spontaneous preterm birth at 20 to 31 weeks. However, this study also did not observe actual exposure and did not account for other sources of air pollution in the region. As explained in the “Technical Memorandum from D. Garabrant to J. Dintzer, 2020” discussed in the SREIR (October 2020), Vol. 1, at 4.3-30, neither Tran (2020) nor Gonzalez (2020) show a causal relationship between birth outcomes and proximity to oil and gas activities. Neither study measured actual exposure to oil and gas pollutants or contaminants, nor measured any specific chemical or physical agents. Further, neither study accounted for confounding factors that could result in negative outcomes. The SREIR (October 2020) thus fully informs the public of potential impacts of the Project and determines that no health impacts are expected based on the multi-well Health Risk Analysis and the implementation of MM 4.3-5, which creates trigger distances from well sites to adjacent property lines to mitigate the potential health risks from oil and gas activities approved under the Project.

The SREIR recognizes the existing status of air quality in the Project area, including that the San Joaquin Valley is nonattainment for ozone, particulate matter up to 10 microns in diameter (PM₁₀), and particulate matter up to 2.5 microns in diameter (PM_{2.5}) (SREIR [October 2020], Vol. 1, at 4.3-4-7) and discusses the current applicable attainment plans for the Project Area (SREIR [October 2020], Vol. 1, at 4.3-67-70). MM 4.3-8 also requires emissions of designated criteria air pollutants to be fully offset by funding emission reduction projects in the air basin, allowing the valley to continue to expeditiously work towards attainment of all state and federal air quality standards. See SREIR (October 2020), Vol. 1, at 4.3-164-166. Rather than exacerbating existing health risk, the Project would require oil and gas operations to meet a host of mitigation measures designed to protect the environment and that were not applicable in the prior “as of right” regime in Kern County.

As to the reuse of wastewater for irrigation and domestic purposes, in response to concerns about the use of produced water for agricultural irrigation, in 2015 the Central Valley Regional Water Quality Control Board (CVRWQCB) initiated a Food Safety Project that includes a panel of outside experts and representatives of state agencies responsible for food safety. In November 2019, the CVRWQCB published a draft report on the Food Safety Project that states that the recycling of water is encouraged by state policy as a means to supplement California’s limited water supply, if the water is suitable for the intended use. As of October 2020, the most recent progress report posted on the CVRWQCB’s Oil Field-Food Safety website was from February 25, 2020 (GSI 2020). The progress report provides a summary of “results and major findings,” including the finding that food crop sampling data conducted from 2017 to 2019, including tree nut, citrus, and vegetable crops such as carrots and potatoes, indicates that overall there does not appear to be any evidence of a difference between treated and control samples that can be attributed to produced water. See SREIR (October 2020), Vol. 1, at 4.9-153-155. As discussed in more detail in Section 4.17, Utilities and Service Systems, the sale or transfer of produced water for “domestic use” as reported in the quarterly water use reports by the California Geologic Energy Management Division is defined as water “used for agriculture, irrigation, water replenishment, water banking, livestock, etc.” SREIR (October 2020), Vol. 1, at 4.17-52. This definition of “domestic use” does not refer to any direct human consumption of, or direct human contact with, produced water, and there are no proposals to use treated produced water for any form of direct human consumption. See SREIR (October 2020), Vol. 1, at 4.17-52-53. As discussed in more detail in Section 4.9, Hydrology and Water Quality, the use of treated and produced water for agricultural irrigation can only occur under permits issued by the Regional Water Quality Control Board and is subject to extensive monitoring requirements. See SREIR (October 2020), Vol. 1, at 4.9-153-156. There has been no evidence to date of any health or safety issue associated with the use of treated produced water for agricultural irrigation in the Project Area. See SREIR (October 2020), Vol. 1, at 4.9-153.

Finally the comment states that a 2,500-foot setback should be instituted to protect sensitive receptors from nearby drilling. Please see Responses to Comments 0009-57 through 0009-82, which explain why a 2,500-foot setback requirement is not necessary based on recent studies on potential oil and gas activities and the Health Risk Assessments conducted for the SREIR. Please also see Responses to Comments 0009-83 through 0009-88, which explain why a large setback may result in legal takings concerns. As explained above in this Response to Comment, the multi-well Health Risk Assessment conducted for the SREIR shows that even in the highly conservative scenario where forty-eight 13,000-foot wells are drilled in concentric circles in close proximity to a sensitive receptor, with multiple other conservative assumptions, including all seven phases of drilling occurring at the same time, well workover every other year, and a co-located sump, health risk is 9.3 in 1 million, well below the San Joaquin Valley Air Quality Management District threshold of 20 in 1 million. Thus, the Project will not lead to increased harm to Kern County residents.

0007-9

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment states that the COVID-19 pandemic has highlighted how deadly pollution from oil and gas extraction is and that research shows that exposure to higher amounts of air pollution increases vulnerability to COVID-19. The comment also states that people of color are more likely to live near oil wells and more likely to get sick or die from COVID-19. The SREIR (August 2020) contains a background discussion of COVID-19 and cites the Harvard University School of Public Health study by Wu et al. (2020) referenced in the comment as showing that a small increase in long-term exposure to PM_{2.5} has been found to lead to an increase in the death rate of COVID-19. See SREIR (August 2020), Vol. 1, at 4.3-27-28. This discussion has been updated in the SREIR (October 2020), given the September 18, 2020, update to the Harvard study, and explains that long-term exposure to PM_{2.5} is associated with higher COVID-19 mortality rates, even after adjustment for other confounding factors. See SREIR (October 2020), Vol. 1, at 4.3-43. The SREIR (October 2020) also explains that people of color may live in areas already burdened by air pollution and that people of color may also have a higher risk of getting sick or dying from COVID-19. See SREIR (October 2020), Vol. 1, at 4.3-43.

The SREIR explains that long-term exposure to PM_{2.5} emissions may add to potential susceptibility to COVID-19 and that onsite workers and residents near Project activities potentially could be exposed to increased levels of PM_{2.5} from Project activities due to the emissions of PM_{2.5} from the Project, as described in Impact 4.3-2. See SREIR (August 2020), Vol. 1, at 4.3-134. This discussion has been updated in the SREIR (October 2020) to add the studies cited by the comment. See SREIR (October 2020), Vol. 1, at 4.3-155–156. The SREIR also states that PM_{2.5} emissions from diesel combustion during construction and operation of the proposed Project could increase susceptibility to COVID-19. See SREIR (October 2020), Vol. 1 at 4.3-156. The SREIR states that, although PM_{2.5} emissions from Project implementation will be reduced as much as feasible with implementation of MM 4.3-1 through MM 4.3-4, and MM 4.3-8, this impact cannot be mitigated to a level of less than significant as the timeline for widespread community immunity to COVID-19 is yet unknown. Thus, the SREIR finds this impact significant and unavoidable even with all feasible mitigation. The SREIR thus contains a thorough discussion of COVID-19 and its relationship to PM_{2.5} emissions.

The SREIR (August 2020) also explains that, as of June 23, 2020, Kern County had 4,049 cases of COVID-19, with 60 deaths out of 900,202 residents. Over 64 percent of County residents who had COVID-19 as of that date, are Hispanic, while 13 percent are White, 13 percent are unknown, 3 percent are Black, 3 percent are Asian, and 1 percent are other. See SREIR (August 2020), Vol. 1, at 4.3-28. This information has been updated in the SREIR (October 2020) to reflect more recent data on COVID-19 infections, which states that as of October 2, 2020, Kern County had 32,184 cases of COVID-19, with 371 deaths out of 900,202 residents. Fifty-five percent of County residents who have had COVID-19 are Hispanic, while 22 percent are unknown, 12 percent are White, 5 percent are other, 4 percent are Black, and 2 percent are Asian. See SREIR (October 2020), Vol. 1, at 4.3-44.

0007-10

Kern County has substantially diversified its energy economy and has permitted the most renewable and diverse electric energy production from solar, wind, geothermal, and biomass than any other county in California. Renewable energy projects also include transmission line and other infrastructure improvements needed to bring this renewable energy to the grid. Renewable energy production is anticipated to continue to increase, along with jobs in this industry, over time. Information about renewable energy projects in Kern County is available on the Kern County Planning and Natural Resources Department website at <https://kernplanning.com/planning/renewable-energy/>. Oil and gas also continues to be an integral component of this diversified local energy economy and includes thousands of oil field jobs, from drilling through production and maintenance to capping and de-commissioning.

0007-11

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decision makers.. Please see GR-1 – Beyond the Scope of the SREIR.

The comment states that fast-tracking new oil and gas wells will impact California’s climate future. It also states that California is experiencing heatwaves and wildfires, and that continued oil and gas development will accelerate and worsen the effects of climate change.

As explained in GR-1 – Beyond the Scope of the SREIR, the Court of Appeal’s decision upheld the 2015 FEIR against all of the claims raised on appeal except for “five areas in which the EIR did not comply with CEQA: (1) mitigation of water supply impacts; (2) impacts from PM_{2.5} emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well Health Risk Assessment for public review and comment.” Slip Opinion, at 140. The Court of Appeal did not require the County to revise or reopen any other issues in the 2015 FEIR, including the Project’s impacts on climate change. Because the issues identified in the comment do not fall into one of the five issues noted in the Court of Appeal’s decision, the County was not required to re-open or reanalyze the Project’s impacts on climate change or greenhouse gas emissions in the SREIR.

Further, none of the climate issues raised in the comment constitute “changed circumstance” or “new information” requiring supplemental environmental review under CEQA. Under CEQA, a supplemental EIR is not required unless:

- substantial changes to the proposed project, or to the circumstances under which the project is undertaken, will require major revisions of the prior EIR due to new or substantially more severe environmental impacts; or
- new information of substantial importance is available, which was not known and could not have been known when the prior EIR was certified, shows that the project will have new or substantially more severe environmental impacts; or new information of substantial importance is available, which was not known and could not have been known when the prior EIR was certified, shows that mitigation measures or alternatives previously found infeasible, or

considerably different from those analyzed in the prior EIR, would substantially reduce significant impacts, but the project proponents decline to adopt the mitigation measure or alternative. CEQA § 21166; CEQA Guidelines § 15162.

As the California Supreme Court has explained, the provisions governing supplemental CEQA review “are designed to balance CEQA’s central purpose of promoting consideration of the environmental consequences of public decisions with interests in finality and efficiency.” *Friends of College of San Mateo Gardens v. San Mateo County Community College Dist.* (2016) 1 Cal.5th 937, 949.

The 2015 FEIR (Section 4.7, Greenhouse Gas Emissions and Global Climate Change) fully analyzed the Project’s climate change impacts and described a suite of mitigation measures to avoid, minimize, and mitigate the impacts of the Project on generation of greenhouse gas emissions and contributions to global climate change. With the implementation of the mitigation measures, the Project-level impacts would be less than significant but the cumulative impacts on global climate change and plans for reduction of emissions would still have significant and unavoidable impacts.

Moreover, the 2015 FEIR expressly acknowledged the California-specific climate change impacts mentioned by the commenter (i.e., heat waves, wildfires). Specifically, the 2015 FEIR noted that:

Generally, research indicates that California should expect overall hotter and drier conditions with a continued reduction in winter snow (with concurrent increases in winter rains), as well as increased average temperatures, and accelerating sea-level rise. In addition to these changes, the intensity of extreme weather events is also changing. The impacts assessment indicates that extreme weather events, *such as heat waves, wildfires*, droughts, and floods are likely to be some of the earliest climate impacts experienced. 2015 FEIR, Vol. 1, at 4.7-9; (emphasis added).

Thus, the comment does not raise either substantial changes in circumstances or new information requiring supplemental environmental review under CEQA § 21166 and CEQA Guidelines § 15162, nor significant new information requiring recirculation of the SREIR under CEQA Guidelines § 15088.5.

0007-12

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response.

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September 16, 2020

Via Electronic Mail Only

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Re: Draft Supplemental Recirculated Environmental Impact Report for
Revisions to the Kern County Zoning Ordinance – 2020 A, focused on Oil
and Gas Local Permitting

Dear Ms. Hoover:

On behalf of King and Gardiner Farms, LLC, we have reviewed the draft Supplemental Recirculated Environmental Impact Report ("Draft SREIR" or "DSREIR") prepared in connection with a project entitled "Revisions to the Kern County Zoning Ordinance – 2020 A, focused on Oil and Gas Local Permitting" ("Ordinance" or "Project"). As you know, the Court of Appeal found significant flaws with the original environmental impact report ("EIR") for this Project (*see King and Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814), and the trial court subsequently entered a judgment directing the County to revise its environmental analysis in far-reaching and substantial ways. Unfortunately, the Draft SREIR not only fails to correct the errors identified by the court, but also falls short of the most basic requirements of the California Environmental Quality Act ("CEQA"), Public Resources Code § 21000 et seq., and the CEQA Guidelines, California Code of Regulations, title 14, § 15000 et seq. ("Guidelines").

In particular, the Draft SREIR fails to adequately (1) identify effective mitigation for the Project's significant impacts on agricultural land conversions, (2) update the prior EIR's analysis of water impacts; (3) mitigate the Project's significant noise impacts, or (4) correct the errors in the County's Cumulative Health Risk Assessment ("CHRA"). The County's refusal to provide the corrected analyses not only directly contravenes the court's judgment in this case, but also undermines CEQA's core purposes: to inform decisionmakers and the public regarding the environmental consequences of its decision, if any, to reapprove the Project, and to reduce or avoid those consequences to the extent feasible.

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This firm previously submitted three extensive comment letters on the EIR for this Project. *See* Letters from SMW dated September 11, 2015, November 5, 2015, and November 6, 2015. Because those comments remain applicable to the County's analysis of the Project, we incorporate them, and all accompanying exhibits, by reference as if fully set forth herein. In addition, we submit herewith the following technical reports:

J. David Hughes, Comment on Draft Supplemental Recirculated Environmental Impact Report, Revisions to the Kern County Zoning Ordinance – 2020 A (“Hughes Report”), September 2020, attached as Exhibit DSREIR 1.

Charles M. Salter Associates, Inc., Kern County Zoning Ordinance Revision, Acoustical Comments On Draft Supplemental Recirculated Environmental Impact Report (“Salter Report”), September 2020, attached as Exhibit DSREIR 2.

Phyllis Fox, Report on the Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020 A, focused on Oil and Gas Local Permitting (“Fox Report”), September 2020, attached as Exhibit DSREIR 3.

We refer the County to these reports, both here and throughout these comments, for further discussion of the Draft SREIR's inadequacies. We respectfully request that the County respond not only to the comments set forth in our letter, but also to the comments presented in the attached reports.

I. The Draft SREIR Fails to Identify Feasible Mitigation for the Project's Significant Impacts to Agricultural Lands.

Among the reasons the Court of Appeal invalidated the County's original EIR for the Project was its failure to identify effective mitigation for the Project's significant impacts on agricultural land conversions. *King and Gardiner Farms*, 45 Cal.App.5th at 870-79. To address these agricultural impacts, the County had adopted Mitigation Measure 4.2-1, which contained four measures that purportedly were intended, individually or in combination, to achieve a 1:1 mitigation ratio:

- (a) Funding and/or purchasing agricultural conservation easements.
- (b) Purchasing credits for conservation of agricultural lands from an established agricultural farmland mitigation bank.
- (c) Restoring agricultural lands to productive use through the removal of legacy oil and gas production equipment, including well abandonment and removal of surface equipment.
- (d) Participating in any agricultural land mitigation program adopted by Kern County that provides equal or more effective mitigation.

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Id. at 871. Relying on this mitigation, the County concluded that the Project’s agricultural impacts had been reduced to a level of insignificance. *Id.* at 872.

The Court of Appeal disagreed, holding that the County erred in concluding that MM 4.2-1 options (a), (b), and (d) would reduce the Project’s impacts to a level of insignificance. *Id.* at 829-30, 872-79. As to option (a), the court noted that “entering into a binding agricultural conservation easement does not create new agricultural land to replace the agricultural land being converted.” *Id.* at 875. It also found that option (b), purchasing credits from an agricultural mitigation bank, and option (d), participating in an agricultural farmland mitigation program, were both too vague and under-developed to constitute effective mitigation under CEQA. *Id.* at 877. The court did, however, approve of option (c)—the removal of legacy oil and gas equipment—as providing “effective mitigation for the conversion of agricultural land” because it would “result in no net loss of agricultural land.” *Id.* at 876. Given that oil operators could select *any* of the mitigation options, however, the court invalidated MM 4.2-1. *Id.* (noting that option for removal of legacy equipment was not “sole method authorized”).

The Court of Appeal concluded that, should the County seek to renew the Project, it “must take the corrective action necessary to bring the EIR and the mitigation measures into compliance with CEQA.” *Id.* at 897. Yet, instead of correcting its agricultural mitigation analysis and “consider[ing] other proposed mitigation measures” (*id.* at 830), the County has now completely abandoned any attempt to mitigate the Project’s damage to agricultural lands. The Draft SREIR revokes all four options under MM 4.2-1—even the option upheld by the Court of Appeal—and draws the unsupported conclusion that “there is no feasible mitigation that can reduce Project impacts to prime farmland, unique farmland, and farmland of statewide importation (Impact 4.2-1), or reduce Project impacts that could convert agricultural land to non-agricultural use (Impact 4.2-5) to a less than significant level.” Draft SREIR at 4.2-29 to -30, -33.¹ As explained below, the County’s contention does not pass muster under CEQA.

A. Agricultural Conservation Easements Are a Feasible Form of Mitigation that the County Should Utilize.

In the Draft SREIR, the County misreads the Court of Appeal’s opinion to say that conservation easements can *never* be used as mitigation for loss of agricultural land. Draft SREIR at 4.2-30. The County’s interpretation of the court’s decision is flat wrong. The Court of Appeal did not prohibit the use of conservation easements, but instead faulted the County’s *finding* that reliance on conservation easements at a 1:1 ratio would reduce agricultural impacts to an insignificant level. *King and Gardiner Farms*, 45 Cal.App.5th at 829-30. As the appellate court explained, “[b]ecause the easement does not offset the loss of agricultural land ... the

¹ KGF agrees that MM 4.2-1(d) adds nothing to MM 4.2-1(a), (b), or (c). If the County provides adequate measures calling for conservation easements, land preservation banks, and removal of legacy equipment, as well as clustering, there is no need for MM 4.2-1(d). *See King and Gardiner Farms*, 45 Cal.App.5th at 877. We have no objection to the deletion of this measure.

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easement does not reduce a project's impact on agricultural land." *Id.* at 875. Thus, conservation easements cannot be relied upon to conclude that a project's agricultural land conversion impacts will be less than significant.

In its flawed interpretation of the Court of Appeal's opinion, the County insists that use of conservation easements as mitigation is "not in legal compliance with [CEQA]." Draft SREIR at 4.2-29. Nothing could be further from the truth. This incorrect reading willfully ignores both the language of CEQA *and* the appellate court's stated reasoning. First and foremost, CEQA does not limit mitigation to measures that would entirely avoid a project's environmental impacts; rather, CEQA mitigation includes measures that would "*substantially lessen* the significant environmental effects" of a project. Pub. Res. Code § 21002 (emphasis added). Even if a public agency cannot completely eliminate significant impacts, CEQA requires that it nonetheless must reduce them to the extent feasible. *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 524-25 ("Even when a project's benefits outweigh its unmitigated effects, agencies are still required to implement all mitigation measures unless those measures are truly infeasible."). The CEQA Guidelines thus encourage not only avoidance measures, but also mitigation through minimization, preservation, and other measures. Guidelines § 15370(d)-(e).

While conservation easements may not entirely eliminate the impacts of agricultural land conversion, they can reduce them. As the Court of Appeal recognized in its citation with approval to *Citizens for Open Government v. City of Lodi*, agricultural easements provide a benefit in "prevent[ing] the future conversion of the agricultural land subject to the easement." *King and Gardiner Farms*, 45 Cal.App.5th at 873 (citing *Citizens for Open Government v. City of Lodi* (2012) 205 Cal.App.4th 296, 322, 324 (finding that agricultural conservation easements "minimize and substantially lessen the significant effects of the proposed project," even though they do not fully replace the converted land). Like off-site preservation of habitat for endangered species, agricultural conservation easements help to prevent a resource from being entirely used up to the point of extinction. "By thus preserving substitute resources, ACEs [agricultural conservation easements] compensate for the loss of farmland within the [Guidelines'] definition of mitigation. (Guidelines, § 15370(e) [mitigation includes '[c]ompensating for the impact by replacing or providing substitute resources or environments'].)" *Masonite Corp. v. County of Mendocino* (2013) 218 Cal.App.4th 230, 238 (finding agricultural easements legally feasible under CEQA).²

² As the Court of Appeal noted, the conclusions reached in *Masonite* were not inconsistent with the reasoning the court applied. *King and Gardiner Farms*, 45 Cal.App.5th at 875, fn. 32. The appellate court here was primarily focused on whether the use of conservation easements supported the County's finding that agricultural conversion impacts would be less than significant after mitigation, whereas the *Masonite* court examined the legal feasibility of conservation easements as a mitigation measure without addressing the agency's ultimate findings.

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Accordingly, conservation easements allow for the preservation of farmland, one of California's most important environmental resources. *See* Civ. Code § 815; Gov. Code § 51220. The California Legislature has recognized that farmland conversions create development pressures that increase the likelihood of further conversion elsewhere (Pub. Res. Code § 10201, subds. (b)-(d)), and has identified conservation easements as a vital tool in combating those pressures. Pub. Res. Code §§ 10200 et seq.; Civ. Code § 815. As the Third District explained in an unpublished opinion, "conservation easements can diminish the development pressures created by the conversion of farmland and can provide important assistance to the public and private sectors in preserving other farmland against the danger of the domino effect created by the project." *S. Cty. Citizens for Responsible Growth v. City of Elk Grove*, No. C042302, 2004 WL 219789, at *8 (Cal. Ct. App. Feb. 5, 2004).

Over the last few decades, conservation easements have become a commonly used and widely accepted mechanism in California to help mitigate agricultural conversion impacts. Numerous cities and counties throughout the state now regularly utilize agricultural conservation easements to protect existing off-site agricultural land. Some examples include: County of Yolo (3:1 mitigation ratio)³; City of Davis (2:1)⁴; City of Vacaville (1:1)⁵; City of Livermore

³ Yolo County requires mitigation at a 3:1 ratio for impacts to prime farmland and mitigation at a 2:1 ratio for non-prime farmland; <https://www.yolocounty.org/home/showdocument?id=65432> (*see page 135*)

⁴ http://qcode.us/codes/davis/view.php?topic=40a-40a_03-40a_03_035&frames=off.

⁵ <https://www.codepublishing.com/CA/Vacaville/#!/Vacaville14/Vacaville1428001.html#14.28.001>

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(minimum 1:1)⁶; City of Stockton (1:1)⁷; City of Elk Grove (1:1)⁸; County of San Joaquin (1:1)⁹; County of Stanislaus (1:1)¹⁰; City of Livermore (1:1)¹¹.

Where local agencies have found use of conservation easements to be infeasible, it is for economic reasons not at issue in Kern County. For instance, in *City of Irvine v. County of Orange*, the court determined that agricultural conservation easements would not be economically feasible given skyrocketing land and agricultural labor costs, as well as severe constraints on “hours of operation, limits on pesticide and fertilizer use, required setbacks from adjacent non-agricultural uses, and even the ‘cleanup’ that is required when farm equipment is used on public roads.” (2015) 238 Cal.App.4th 526, 544-46, 556-57. As the court noted, Orange County had made a conscious policy decision “not to aggressively preserve agricultural lands” in the face of increasing urbanization. *Id.* at 557. Similarly, in *Cherry Valley Pass Acres & Neighbors v. City of Beaumont*, the court agreed with the EIR’s assessment of economic infeasibility, explaining that because “[a]gricultural uses will continue to relocate out of this area as urban development moves east from Riverside and San Bernardino, ... land values and land use conflicts with urban development [will] increase.” (2010) 190 Cal.App.4th 316, 350-51. The court concluded that conservation easements were infeasible because agriculture was becoming decreasingly viable in the region. *See also Defend the Bay v. City of Irvine* (2004) 119 Cal.App.4th 1261, 1269-71 (finding that off-site agricultural conservation easement mitigation was infeasible due to a lack of economic viability and absence of “other comparable land planned for agriculture in the General Plan”).

Here, in contrast, there are 582,856 acres of prime farmland in the Project area, 210,957 acres of farmland of statewide importance, and 86,512 acres of unique farmland. Draft SREIR at

⁶ <http://www.cityoflivermore.net/civicax/filebank/documents/6093> (see page 3-79)

⁷ http://www.stocktongov.com/files/Adopted_Plan.pdf (see page 3-20)

⁸ http://www.elkgrovecity.org/UserFiles/Servers/Server_109585/File/Departments/Planning/Projects/General%20Plan/GPU/Amend_2019-12/GP_Complete_web_2019-12.pdf (see page 4-49)

⁹ https://library.municode.com/ca/san_joaquin_county/codes/development_title?nodeId=TIT9DETI_DIV10DERE_CH9-1080AGMI_9-1080.5AGMILA (see § 9-1080.3 (c))

¹⁰ <http://www.stancounty.com/planning/pl/gp/current/gp-chapter7.pdf> (see page VII-39)

¹¹

https://calafco.org/sites/default/files/resources/CALAFCO_U/City_of_Livermore_Ag_and_Open_Spaces_Susan_Frost.pdf (see pdf page 4)

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4.2-8. The agricultural industry is the top employer in Kern County.¹² In 2017-2018, Kern County was the nation's leading agricultural county based on a gross agricultural value of around \$7.25 billion.¹³ Although Kern County's valuable farmland does face some of its own development pressure, the availability of agricultural land to place into conservation easements and the continuing viability of Kern County's farming industry make this form of mitigation both legally and economically feasible. The County could easily adopt a robust program for conservation easements and thus achieve at least partial mitigation for the Project's impacts on agricultural land.

Beyond its misreading of the Court of Appeal opinion, the County offers one other flawed justification for abandoning conservation easements as a mitigation tool. The Draft SREIR sets up a straw-man environmental feasibility argument, arguing that Groundwater Sustainability Plans "limit[] the use of agricultural easements" because such easements require land to remain in agriculture, a use that "depends on a supply of water." Draft SREIR at 4.2-30. This argument does not bear scrutiny. The purpose of a conservation easement is to keep valuable land in agricultural production. *Masonite Corp.*, 218 Cal.App.4th at 238 ("ACEs preserve land for agricultural use in perpetuity."); see Civ. Code §§ 815.1, 815.2 (describing agricultural and other conservation easements); see also Pub. Res. Code § 10211 (defining "agricultural conservation easement"). The conservation easement need not mandate a specific level of agricultural use and therefore does not require a specific level of water use that would conflict with restrictions on groundwater, as the Draft SREIR assumes.

There is no basis for the County's assumption that any program for agricultural conservation easements must apply a rigid formula mandating particular, water-intensive agricultural uses. As the American Farmland Trust has explained, agricultural conservation easement programs can and should be tailored to accommodate the unique challenges of each local jurisdiction.¹⁴ For example, Madera County is currently designing an innovative agricultural conservation easement program to meet the groundwater management requirements of the Sustainable Groundwater Management Act ("SGMA"). See Madera County Department of Water and Natural Resources, *SGMA Agricultural Land Solution Plan*, SALC Application

¹² See Statistical Atlas, <https://statisticalatlas.com/county/California/Kern-County/Industries>, accessed on Sept. 11, 2020.

¹³ FarmProgress, "Kern holds its top spot as nation's leading agricultural county," Sept. 19, 2018, available at <https://www.farmprogress.com/grapes/kern-holds-its-top-spot-nations-leading-agricultural-county>.

¹⁴ <https://databasin.org/galleries/4b7684cdfc714babb1c883432022297a>

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(2019).¹⁵ The Sierra Foothill Conservancy supports this program because it will enable the region to preserve farmland despite limitations on groundwater use: “This program will establish criteria for identifying and prioritizing agricultural land for its potential to be farmed or temporarily rested (not used as irrigated farmland), permanently retired, or retired and restored and when appropriate, permanently protected. The additional goal is to create an incentive structure for agricultural landowners to rest, retire, restore, or permanently protect their land via various types of water-centric conservation easements.” Letter dated August 13, 2019 to V. Jameson from B. Fithian.¹⁶ There is no reason that Kern County could not design a similar program here, so that farmers can protect and preserve their farmland while still complying with SGMA.

In sum, the Draft SREIR fails to provide substantial evidence showing that agricultural conservation easements are legally, economically, or environmentally infeasible. *See* Pub. Res. Code §§ 21061.1 (defining “feasible”); 21081 (listing findings necessary to reject mitigation measure as infeasible); Guidelines § 15126.4(a); *San Franciscans for Livable Neighborhoods v. City & Cty. of San Francisco* (2018) 26 Cal.App.5th 596, 636. “To categorically exclude ACEs as a means to mitigate the conversion of farmland would be contrary to one of CEQA’s important purposes ACEs should not ‘be removed from agencies’ toolboxes as available mitigation’ for this environmental impact.” *Masonite*, 218 Cal.App.4th at 241. Accordingly, the County must revise its SREIR to restore and strengthen MM 4.2-1(a).

B. The County Is Refusing an Opportunity to Create a Viable Mitigation Bank or Equivalent Program.

The County’s original EIR for the Project included Mitigation Measure 4.2-1(b), which calls for purchasing credits from an agricultural mitigation bank or equivalent farmland protection program. *King and Gardiner Farms*, 45 Cal.App.5th at 877. The Court of Appeal struck down this measure as being too vague to provide effective mitigation under CEQA. *Id.* Beyond striking the entirety of MM 4.2-1, the County does not mention subdivision (b) in its Draft SREIR analysis, let alone explain why it was eliminated.

The County’s decision to abandon MM 4.2-1(b)—rather than developing a viable County-wide mitigation bank or equivalent program as part of the SREIR process—is a wasted opportunity to provide meaningful protection for Kern County’s agricultural resources. The Court of Appeal expressly stated that mitigation banks can serve as an effective form of mitigation for agricultural impacts. *Id.* (“money spent on fees or credits is an appropriate form of mitigation [for conversion of agricultural land] if linked to a reasonable plan for mitigation.”). The court invalidated MM 4.2-1(b) only because, given the record of proceedings in connection

¹⁵ https://www.maderacountywater.com/wp-content/uploads/2020/02/FY18-19-SALCP_Ag-Land-Conservation-Planning-Application_Madera-County_Final.pdf (see page 6)

¹⁶ The Fithian letter is included in link shown in the preceding footnote (see pdf page 42).

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with the County's 2015 approval, it could not "determine whether the credits that might be purchased ... are linked to a reasonable plan for mitigation." The court pointedly noted that "nothing in the record establish[ed] such banks or programs [even] exist." *Id.*

Agricultural land banks—and the requirement for payment of in-lieu fees—are a common tool used throughout California to mitigate for the conversion of valuable farmland. *See, e.g.*, in-lieu fee programs in City of Vacaville¹⁷, City of Stockton¹⁸, City of Davis¹⁹, and City of Brentwood²⁰; *see also* Farmland Protection Action Guide: 24 Strategies for California, at 48.²¹ Here, rather than design a mitigation bank program with sufficient specificity to comply with CEQA, the County has removed this mitigation with no explanation at all. The Draft SREIR must be revised to establish an agricultural land bank, or equivalent preservation program, that effectively mitigates the farmland conversions caused by the Project.²²

C. State Law Does Not Preempt Removal of Legacy Oil and Gas Equipment as a Mitigation Measure.

The County proposes to delete Mitigation Measure 4.2-1(c), which allows oil and gas operators to mitigate agricultural impacts by "restoring agricultural lands to productive use through the removal of legacy oil and gas production equipment, including well abandonment

¹⁷ <https://www.codepublishing.com/CA/Vacaville/#!/Vacaville14/Vacaville1428001.html#14.28.001>

¹⁸ http://www.stocktongov.com/files/Adopted_Plan.pdf (*see* page 3-20 (Policy LU-5.3 and Action LU-5.3C))

¹⁹ <http://documents.cityofdavis.org/Media/Default/Documents/PDF/CityCouncil/Open-Space-and-Habitat-Commission/Agendas/20160502/Ag%20Mitigation%20Presentation%20OSHC%20May%2020216.pdf> (*see* pdf page 2)

²⁰ http://qcode.us/codes/brentwood/view.php?topic=17-x-17_730-17_730_030&frames=on

²¹ https://www.ca-ilg.org/sites/main/files/file-attachments/resources_Farmland_Action_Guide.pdf and <https://www.landtrustalliance.org/news/beyond-agricultural-conservation-easements-ensuring-future-agricultural-production>

²² While MM 4.2-1(b), like the agricultural easements in MM 4.2-1(a), may not be able to reduce the Project's agricultural impacts to an insignificant level, it could still lessen those impacts and provide partial mitigation, as CEQA requires. *See* Pub. Res. Code § 21002.

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and removal of surface equipment.” Draft SREIR at 4.2-29. The appellate court applauded this mitigation measure as “provid[ing] effective mitigation for the conversion of agricultural land” by “returning previously converted land to agricultural use” and “result[ing] in no net loss of agricultural land.” *King and Gardiner Farms*, 45 Cal.App.5th at 876-77. Yet, the County now claims it lacks “legal authority to require such legacy equipment removal to return agricultural land back to the surface owner as a mandatory condition of receiving a County permit.” Draft SREIR at 4.2-31.

In particular, the County points to Assembly Bill 2729 (Stats. 2016, ch. 272; “AB 2729”), Senate Bill 724 (Stats. 2017, ch. 652; “SB 724”), and related California Geologic Energy Management Division (CalGEM) regulations comprising the state’s idle well management program. Draft SREIR at 4.2-31. The County suggests that these state laws and regulations deprive the County of authority to require operators to remove legacy equipment and return agricultural land back to the surface owner. *Id.*

The agricultural impacts discussion in the Draft SREIR does not clearly explain why the County now thinks it lacks authority to adopt MM 4.2-1(c). The introduction to the Draft SREIR cites a 1976 California Attorney General Opinion in support of an assertion that the County “lacks the legal authority to regulate *subsurface* oil and gas activities.” *Id.* at 2-20 to -21 (emphasis added). Yet, the County appears to be claiming state preemption applies to removal of legacy equipment on the *surface* as well. *Id.* at 4.2-30 to -31.

To the extent the Draft SREIR claims MM 4.2-1(c) is preempted, it is wrong. When “local government regulates in an area over which it traditionally has exercised control, such as the location of particular land uses, California courts will presume’ the regulation is not preempted unless there is a clear indication of preemptive intent.” *T-Mobile West LLC v. City and County of San Francisco* (2019) 6 Cal.5th 1107, 1116 (quoting *Big Creek Lumber Co. v. County of Santa Cruz* (2006) 38 Cal.4th 1139, 1149); *see also, e.g., Cal. Grocers Assn. v. City of Los Angeles* (2011) 52 Cal.4th 177, 197-98 (noting presumption against implied preemption is “particularly heavy” where subject matter is “traditionally regulated by ... local governments under their police powers”). The presumption is even stronger where, as here, local regulation serves significant local interests. *City of Riverside v. Inland Empire Patients Health & Wellness Center, Inc.* (2013) 56 Cal.4th 729, 744.

There is no “clear indication” in the state’s idle well management program that the state intended to foreclose all local regulation of surface legacy equipment removal. First, the program addresses only idle wells, not abandoned or active wells that may still have legacy equipment on site. Second, the idle well management program is optional; operators may simply pay a fee for each of their idle wells rather than prepare an idle well management plan. Pub. Res. Code § 3206(a)(1). Third, even if an operator opts to prepare an idle well management plan, the statute requires abandonment and decommissioning (or, alternatively, return to service) only of a subset of “long-term” idle wells each year. *See* Pub. Res. Code §§ 3008(e) (defining “long-term idle well” as well that has been idle for eight or more years); 3206(a)(2)(B)(iv) (idle well

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management plan must require elimination of between four and six percent of operator's long-term idle wells per year); Cal. Code Regs., tit. 14, § 1772.4(a) (establishing criteria for consideration in prioritizing idle wells for abandonment). Accordingly, the state idle well management program at most would require abandonment and decommissioning of a tiny percentage of each operator's wells every year.

The program also expressly provides for local governmental involvement. Any city or county may request a list of an operator's idle wells from the State Oil and Gas Supervisor, identify wells that have no possibility of being reactivated, and request that the Supervisor determine whether the wells should be abandoned. Pub. Res. Code § 3206.5. Moreover, Senate Bill 724 required a report to the Legislature providing recommendations for "improving and optimizing the involvement of local agencies in the process of plugging and abandoning wells and decommissioning facilities. In drafting these recommendations, the department shall consider factors unique to each of the division's districts, and shall consult with local agencies in developing recommendations." SB 724, § 10 (amending Pub. Res. Code § 3258(d)(1)(B)). This explicit invitation for local agency involvement cuts against the County's contention that any mitigation measure requiring removal of legacy equipment would conflict with the state's idle well management program. This is especially true here, where the County has a significant public safety interest in regulating and removing dangerous abandoned oil and gas equipment from the surface of its lands. Such recognition and preservation of local involvement in a statutory scheme strongly indicate that the Legislature did not intend to occupy the field to the exclusion of local regulation. *See IT Corp. v. Solano County Bd. of Supervisors* (1991) 1 Cal.4th 81, 94, fn.10

Accordingly, although the state has created an optional program for abandoning a small percentage of an operator's long-term idle wells, it has not occupied the entire field of surface site remediation. There are a number of scenarios in which the County could require clean-up of legacy equipment without duplicating or running afoul of any state regulations or state approved plans—including where an operator does not have a valid idle well management plan, where the legacy equipment is associated with a previously abandoned well, or where an idle well is not considered "long-term" under the state's idle well management program. The potential for duplicative or overlapping regulation as a result of MM 4.2-1(c) is vanishingly small, if not nonexistent.

Finally, the County's analysis of MM 4.2-1(c) incorrectly assumes that it would be mandatory in every instance. Draft SREIR at 4.2-30 to -31 (discussing consequences of "[m]aking this a mandatory mitigation measure..."). But MM 4.2-1(c) was always just one of the options for agricultural mitigation. Retaining removal of legacy oil and gas equipment as an option would not require applicants to remove other operators' property or conflict with an idle well management plan; rather, the option could be chosen by an operator if it were a feasible and cost-effective way of mitigating for loss of other agricultural land.

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In sum, the Draft SREIR fails to justify elimination of MM 4.2-1(c). The Court of Appeal specifically found this mitigation measure effective in compensating for the loss of agricultural land. *King and Gardiner Farms*, 45 Cal.App.5th at 876. The Draft SREIR's suggestion that it has now been preempted by state law is demonstrably incorrect. An EIR "that incorrectly disclaims the power and duty to mitigate identified environmental effects based on erroneous legal assumptions is not sufficient as an informative document," and an agency's "use of an erroneous legal standard constitutes a failure to proceed in a manner required by law." *City of San Diego v. Board of Trustees of California State University* (2015) 61 Cal.4th 945, 956 (internal quotations and citations omitted). Nor does the Draft SREIR provide substantial evidence showing this mitigation measure is infeasible. See Pub. Res. Code §§ 21061.1 (defining "feasible"); 21081 (listing findings necessary to reject mitigation measure as infeasible); Guidelines § 15126.4(a); *San Franciscans for Livable Neighborhoods v. City & Cty. of San Francisco* (2018) 26 Cal.App.5th 596, 636. The Draft SREIR must be revised to restore MM 4.2-1(c) to the list of potentially feasible agricultural mitigation measures.

D. The County Fails to Provide Substantial Evidence Showing Why Clustering of Oil and Gas Equipment Would Not Be Feasible Mitigation.

In requiring the County to reconsider its agricultural conversion mitigation and findings, the Court of Appeal specifically found that "the EIR should have addressed other proposed mitigation measures, including the clustering of wells when feasible." See *King and Gardiner Farms*, 45 Cal. App.5th at 829-30. Clustering refers to the mitigation KGF and other farmers proposed in comments on the 2015 EIR, which would require operators to group together future oil infrastructure sited on farmland. *Id.* at 879. In the Draft SREIR, the County purports to consider "[m]itigation to require that wells be located in a specific limited area on agricultural operations," but ultimately rejects clustering as infeasible for various environmental and legal reasons. Draft SREIR at 4.2-31. However, as explained below, the County's justification for this conclusion collapses on examination.

First, the County argues that clustering is not feasible because diverging mineral rights and surface rights would make clustering too complicated. Draft SREIR at 4.2-31 to -32. As the County claims, "one legal lot of agricultural land could have dozens of distinct ownership subsurface leases across the property." *Id.* at 4.2-31. The County then asserts that these differing layers of land ownership preclude clustering for two reasons: (1) owners of mineral rights not located directly below a clustered well pad would be forced to rely on directional and horizontal drilling to access their mineral deposits, "which may not be technologically or economically feasible," and (2) where directional and horizontal drilling is not feasible, clustering well pads may "cause a compensable taking of private property." *Id.* at 4.2-31 to -32. Yet, despite the County's hand-wringing, the facts on the ground show that well clustering is very feasible. Moreover, even in the very rare cases where clustering truly would be infeasible, well clustering regulations easily could be designed to allow operators to seek an exemption to drill from a single well pad.

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Not only are directional and horizontal drilling feasible, they “have become the norm in Kern County over the past decade.” Hughes Report (Ex. DSREIR 1) at pp. 2-3. “Whereas 76% of all wells drilled in 2000 were vertical, in 2020, directional drilling accounted for 76% of wells, horizontal drilling accounted for 7%, and vertical wells accounted for just 17%.” *Id.* The County’s claim that Kern County’s variable “geologic conditions” would prevent use of the directional and horizontal drilling needed for well clustering (Draft SREIR at 4.2-31 to -32) rings hollow in the face of these numbers.

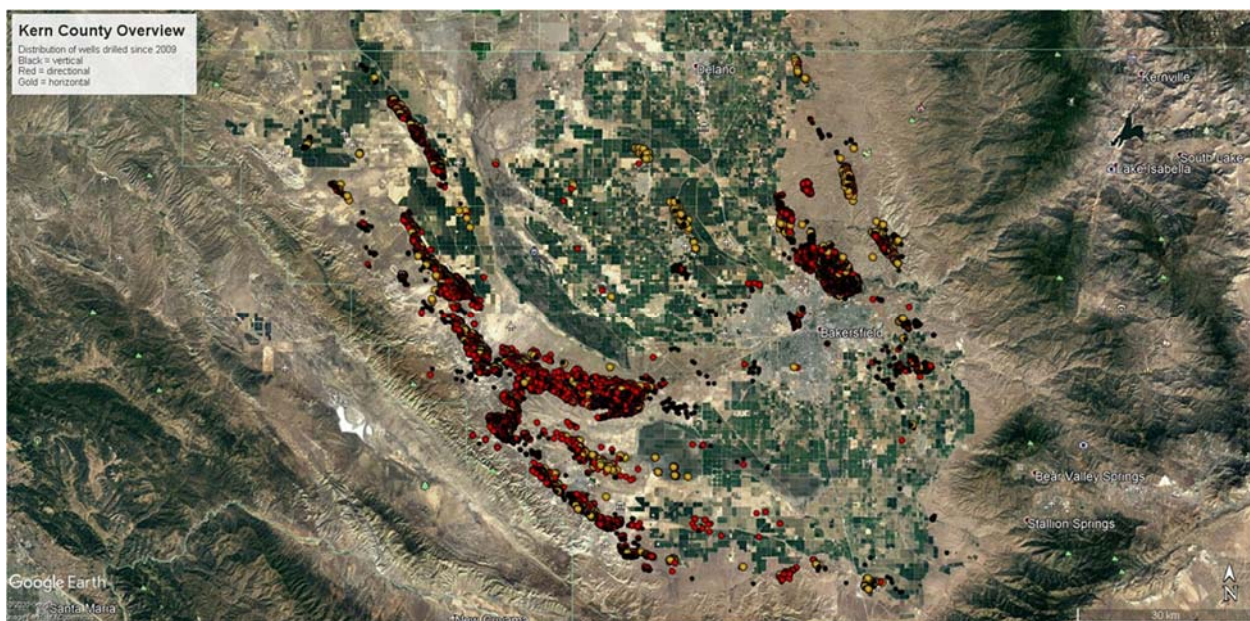


Figure 1 – Distribution of directional, horizontal and vertical wells drilled in Kern County since 2009.²³ Black dots are vertical wells, gold dots are horizontal wells, and red dots are directional wells. (Scale bar at lower right.)²⁴

For the rare reservoirs where directional and horizontal drilling would be geologically infeasible, “operators should be required to make a clear case to regulators for an exemption.” Hughes Report at p. 4. Building an evidence-based exemption mechanism into the well clustering regulations would provide just the type of “flexibility in well design and drilling technique” that the County seeks while providing the benefits of well clustering in most instances. Draft SREIR at 4.2-31 to -32.

²³ Based on data from Enverus retrieved September 5, 2020.

²⁴ Hughes Report at p. 3.

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“Multi-well pad drilling has become the standard in many oil and gas jurisdictions” in the U.S. and Canada, and “has already been implemented in some parts of Kern County.” Hughes Report at p. 4. Clustering offers operators an opportunity for cost savings through the use of common infrastructure, like roads and gather pipelines. *Id.* Clustered well pads also provide significant environmental benefits by “greatly reduc[ing] the surface land footprint compared to construction of many individual well pads.” *Id.* Ignoring these obvious benefits, County offers instead a list of alleged problems with clustered well pads, including potential for injury, increased traffic and air emissions, habitat disruptions, and longer drilling periods. Draft SREIR 4.2-32. Yet, the County provides no evidence to support these assertions—likely because none exists. Hughes Report at p. 4. For example, because a clustered well pad has a much smaller surface land footprint than numerous individual well pads combined, habitat disruptions, emissions, and land impacts would be reduced. *Id.* at pp. 4-5. Moreover, “[a]lthough drilling horizontal and/or directional wells may require a few extra days, constructing multiple single-well pads would likely consume more time overall, along with disturbing more land – given the need to construct road-access and other infrastructure at each single-well pad compared to a single road to serve many wells and other shared infrastructure at a clustered-well pad.” *Id.* at 5. The County’s claims of environmental and economic infeasibility are entirely unsupported.

The County’s assertions of legal infeasibility are similarly unpersuasive. The reality of land ownership in Kern County does not support the County’s concerns about wildly divergent surface and subsurface rights and potential takings claims resulting from a clustering requirement. Mineral tenure data from the Kern County Assessor’s Office reveals that “most individual mineral tenures are quite large; many are 640 acres in area.” Hughes Report at p. 6 (citing the Kern County Assessor’s Office Mapping Section). This means that, in the majority of cases, clustering would not create the access problems the County describes. *Id.* In the limited instances in which mineral tenure *would* constrain drilling, operators should again be allowed to apply for an exemption from the clustered well regulations. Hughes Report at p. 7. Under this model, a mitigation measure requiring clustering would be entirely legally feasible.

Where an agency rejects a proposed mitigation measure as legally, economically, or environmentally infeasible, it must both rely on correct legal standards and provide substantial evidence to support its determination. *See City of San Diego*, 61 Cal.4th at 956; Pub. Res. Code §§ 21061.1; 21081; Guidelines § 15126.4(a). The County has done neither here.

II. The Draft SREIR Fails to Adequately Update the Prior EIR’s Analysis of Water Impacts.

The Court of Appeal found that the 2015 EIR’s discussion of mitigation for the Project’s significant water supply impacts was inadequate, and ordered that it be revised if the County sought to readopt the Ordinance. In doing so, the court explained that “the revised EIR’s analysis of water supply must be brought up to date.” *King and Gardiner Farms*, 45 Cal.App.5th at 845, fn. 15. The court further clarified that the County must decide “in the first instance...as lead

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agency” “[w]hether the updated information will warrant an analysis of impacts to water supplies at a level other than the subareas used in the original EIR.” *Id.* The revised water supply impacts discussion must also “take account of the conditions created by the drought” in “providing updated information and describing the new baseline conditions.” *Id.* at 851, fn. 19. Despite this clear direction, the County has failed to adequately update its analysis or to provide justification for its continued use of overly broad subareas.

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The supplemental recirculated EIR offered the County an opportunity to update and deepen its water supply analysis. Rather than do so, however, the County has doubled-down on its use of three vast subareas to analyze water supply impacts. Draft SREIR at 4.9-5. (“For the purposes of the 2015 FEIR and this SREIR, the Project Area is analyzed with reference to three Subareas: the Western, Central, and Eastern Subareas.”) Moreover, the County offers only a flimsy explanation as to why a more detailed water supply analysis is not warranted during this round of environmental review:

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“...groundwater supplies exist in specific basins and not in localized pockets of subbasins where a local water district controls all the water. Therefore, the use of the three geographical Subareas, which correspond to oilfield production areas that have different characteristics for depth of drilling and amount of wells, is appropriate for the analysis of the groundwater supply. The use of one local well will now be constrained by the SGMA authorities having jurisdiction over that well area for groundwater, and the local domestic water provider or water district for that well will not have autonomy to increase pumping or independently make determinations on pumping requirements. All of the basin included in this Project is under the jurisdiction of a GSA. As such, the analysis and discussion is basinwide, related to the three geographic Subareas that were used for analysis of all impacts, and provides a consistent and comprehensive discussion of baseline conditions that in individual localized analysis could not provide.” SREIR at 4.9-7.

As with the 2015 FEIR, this explanation for relying on subareas makes little sense. If SGMA jurisdiction and regulations will play such a large role in determining the County’s water supply and how it is used, why not analyze impacts at the groundwater sustainability plan-level? As the appellate court pointed out, “the information about groundwater supply and use has increased since the preparation of the draft EIR and that information will have lessened the uncertainty described in the draft EIR [regarding the Project’s groundwater impacts.]” *King and Gardiner Farms*, 45 Cal.App.5th at 900. This new information should have allowed the County to expand its discussion to include a detailed analysis of the Project’s localized impacts, and yet the County has not done so. Although the Draft SREIR lists out the new Project Area groundwater sustainability plans (GSPs) and explains each GPS’s location within the three subareas, this list does not provide the public with the requisite information needed to determine the Project’s actual local water supply impacts.

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It appears that the Draft SREIR's analysis of localized water supply impacts fails to identify all intended and potential water sources for anticipated development/permitted activities in discrete oil fields and agricultural areas, or address the environmental impacts of exploiting those sources. We have not been able to locate any cohesive analysis of how the Project will impact individual water districts, local aquifers and water recharge areas, and groundwater banking programs. The Draft SREIR also appears to lack analysis of the Project's potential to affect groundwater tables in smaller subareas focused on agriculturally rich portions of the County. KGF is concerned, therefore, that the Draft SREIR does not provide local water users with an adequate understanding of the Project's water supply impacts, including the risk of water rationing from local water districts and wells running dry as a result of lowered water tables.

The Draft SREIR's discussion of California's drought conditions is similarly lacking. While the Draft SREIR does provide some updated information regarding the timeline of the recent historic drought, *see* Draft SREIR at 4.2-14 to -16, it fails to recognize the drought as a new baseline condition from which the Project's impacts must be analyzed. As KGF has explained throughout the administrative and litigation stages of the 2015 Project, the 2012-2014 drought was part of a larger paradigm shift in the modern climate change era. Merely describing the 2012-2014 drought in a list of other historical events, as the Draft SREIR does here, fails to capture the recent drought's severity, devastating characteristics, and likelihood of future recurrence. *See* Draft SREIR at 4.2-14 to -16.

Citing significant floods from the 1860s, the Draft SREIR attempts to downplay the 2012-2014 drought with the explanation that "California is inherently subject to varying periods of wetter, drier, and severely dry hydrology." Draft SREIR at 4.9-15. This characterization fails to capture the baseline-shifting nature of the last 50 years and California's current battle with climate change. At the time of the Project's approval, experts warned that more intense future droughts are to be expected. *See, e.g.*, AR:22152-57, 22158-67, 22168-72.²⁵ Now, five years later, it is clear that drought conditions will persist throughout much of California due to climate change. *See, e.g.*, NOAA, *California-Nevada Drought Outlook* (Dec. 2019) ("The 2020 water year (Oct. 2019 – Sept. 2020) started dry in California-Nevada and led to the presence of dry or drought conditions across the region.").²⁶ Equally troubling, these drought conditions are known to contribute to wildfire risks. *See, e.g.*, National Center for Atmospheric Research, *Relationships between Drought and Wildfire in California* (2016) ("There was a positive trend and a positive correlation between the potential fire activity and the annual and winter drought

²⁵ Citations to the "AR" are to the Administrative Record lodged with the Kern County Superior Court in *Vaquero Energy Inc., et al. v. County of Kern, et al.* (Case No. BCV-15-101645 and consolidated cases) on September 15, 2016.

²⁶

https://www.drought.gov/drought/sites/drought.gov.drought/files/CANV_DroughtOutlook_Dec2019%20%281%29.pdf

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episode in CA, during the period 1979-2014).²⁷ As Science Daily reported, “[a]reas that face increasingly severe drought will also be at risk for more and larger fires.”²⁸ Since the Project’s approval in 2015, numerous catastrophic fires have occurred in California.²⁹

In sum, the County has failed to adequately update its drought analysis as required by the appellate court. *See King and Gardiner Farms*, 45 Cal.App.5th at 851 fn. 19. The Draft SREIR must be revised to describe the new baseline conditions created by the 2012-2014 drought and to address the continuing drought conditions caused by climate change.

III. The Draft SREIR Fails to Adequately Mitigate the Project’s Significant Noise Impacts.

The Court of Appeal determined that the prior EIR erred in using a single “absolute” maximum noise standard to assess Project-related increases in noise. *King and Gardiner Farms*, 45 Cal.App.5th at 892-94. Specifically, the EIR lacked any analysis, supported by substantial evidence, showing that the magnitude of noise increases was irrelevant to significance so long as the maximum threshold was not exceeded. *Id.* at 894.

It is highly likely that this Project will cause significant noise increases that will adversely affect County residents. The County’s consultants surveyed ambient noise levels in various locations in January 2015, finding a wide range of conditions; in many areas, however, day-night noise levels (“DNL”) are substantially quieter—as much as 20 dB quieter—than the County General Plan’s maximum 65 dB DNL noise limit, and the quietest nighttime locations are nearly 40 dB quieter. Draft SREIR at 4.12-6 to 4.12-7 (Table 4.12-3). Several drilling-related activities, including well advancement, large-scale exploratory drilling, and well stimulation, would exceed 65 dB DNL at 1,550, 3,270, and 1,090 feet from the drill site, respectively. Draft

²⁷ <https://opensky.ucar.edu/islandora/object/conference%3A3141/datastream/PDF/view>

²⁸ <https://www.sciencedaily.com/releases/2019/07/190709153609.htm>

²⁹ These fires include the Creek Fire (September 2020), the SCU Lightning Complex (August 2020); the LNU Lightning Complex (August 2020), the August Complex (August 2020), the North Complex (August 2020), the CZU Lightning Complex (August 2020), the Mendocino Complex (July 2018), the Carr Fire (July 2018), the Woolsey Fire (November 2018), the Camp Fire (November 2018), the Tubbs Fire (October 2017), the Nuns Fire (October 2017), the Atlas Fire (October 2017), the Redwood Valley Complex (October 2017), and the Thomas Fire (December 2017).

https://en.wikipedia.org/wiki/List_of_California_wildfires#Deadliest_wildfires

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SREIR at 4.12-25 (Table 4.12-8); *see also id.* at 4.12-27 (Table 4.12-11, estimating that pumper trucks used in hydraulic fracturing operations would generate noise exceeding 65 dB at a 2,000-foot distance).

The Draft SREIR applies standards that at least acknowledge the significance of noise increases, which the prior EIR failed to do. Under the Draft SREIR's analysis, temporary (drilling or "construction" related) increases of 5 dB where ambient levels are below 65 dB CNEL, and temporary increases of 1 dB where ambient levels are above 65 dB CNEL, would be considered significant impacts. Draft SREIR at 4.12-27.³⁰ Using these thresholds, the Draft SREIR concludes that significant impacts from noise increases may occur from Project-related "construction" activities.³¹ However, the Draft SREIR also claims that due to the variation in existing ambient conditions, mitigation of these impacts would be infeasible "[i]n the absence of site-specific acoustical analyses for each Project activity." Draft SREIR at 4.12-29. Due to this variation, the Draft SREIR claims "it is impossible to ensure a predictable increase in ambient noise levels using feasible mitigation measures." *Id.* Accordingly, the Draft SREIR concludes that temporary noise impacts are significant and unavoidable. Draft SREIR at 4.12-30.

The Draft SREIR also acknowledges that operational impacts (such as well production equipment, flares, and mobile sources) could result in noise increases exceeding applicable significance standards. Draft SREIR at 4.12-33 to 4.12-34. Again, however, the Draft SREIR concludes that in the absence of site-specific acoustical analysis, "there are no feasible mitigation measures that would result in a predictable increase in ambient noise levels." Draft SREIR at 4.12-33. Yet the Draft SREIR also acknowledges that "where a noise reduction setback can't be achieved, then a Noise Reduction report that shows the ambient noise level at the time of activity and accounts for these variables can be provided and a noise standard achieved." *Id.* at 4.12-34.

³⁰ Elsewhere, the Draft SREIR states that increases of 5 dB would be considered significant only where ambient noise is 60 dB CNEL or lower, while increases of 1 dB would be considered significant if ambient noise exceeded 65 dB CNEL. Draft SREIR at 4.12-23. However, this portion of the Draft SREIR does not explain how the significance of increases would be evaluated where ambient noise levels are between 60 and 65 dB CNEL. The Draft SREIR is thus internally inconsistent on this point. Moreover, it may be that neither formulation of the significance standard correctly reflects underlying noise standards. The Draft SREIR purports to use standards drawn from the Metropolitan Bakersfield General Plan. Draft SREIR at 4.12-22 to 4.12-23. 4.12-27. Under those standards, however, increases of 3 dB, not 5 dB, should be considered significant where ambient noise levels are between 60 and 65 dB CNEL. Draft SREIR at 4.12-16.

³¹ The Draft SREIR refers to a wide range of activities related to exploration and drilling as "construction," while acknowledging that these activities are not typical of other kinds of "construction" and have unique and different noise impacts. *See* Draft SREIR at 4.12-24, 4.12-27 to 4.12-28.

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This suggests—contrary to the Draft SREIR’s implication that impacts are simply unavoidable—that feasible, site-specific mitigation *could* reduce or avoid significant noise increases.

As discussed in the Salter Report (Ex. DSREIR 2), the Draft SREIR’s approach to noise mitigation is seriously flawed. First, the Draft SREIR fails to include any requirement for evaluation of ambient noise at a project site. This is not impossible, as the Draft SREIR incorrectly suggests, but rather would require only a simple “spot check” that could take as little as 15 minutes during daylight hours. Salter Report at 3. Where daytime average noise levels are below 60 dB, additional study and noise reduction measures could be required. *Id.* Mitigation Measure 4.12-1 already requires at least some level of site-specific noise analysis and mitigation where sensitive uses are located within setbacks defined by the 65-dB maximum noise contour; site-specific analysis and mitigation, therefore, are presumably feasible. These existing measures must be augmented by the additional, feasible measures identified in the Salter Report, including not only screening for ambient noise levels, but also peer review by an independent review team and development of a process for evaluating and responding to noise complaints. Salter Report at 3.

Second, and relatedly, MM 4.12-1 fails to protect against significant noise increases in violation of the 5 dB/1 dB increase threshold because it relies solely on the 65-dB maximum noise contour to determine whether any site-specific analysis and mitigation are required. As a result, well drilling activities located in quiet areas, but outside the maximum 65-dB contour, could significantly increase noise at sensitive receptors without triggering any site-specific review or mitigation requirement. Salter Report at 4. Again, a screening requirement that utilizes actual ambient noise measurements is both readily feasible and necessary to ensure achievement of the noise standard. *Id.*

Third, the Draft SREIR’s mitigation measure for operational noise impacts (MM 4.12-2) completely fails to address the portion of the noise standard addressing noise increases—even though the Draft SREIR specifically acknowledges that this standard must be met in order to avoid significant impacts. Salter Report at 5. There is no reasonable basis for treating operational noise increases—which may persist for decades if exploration is successful—less stringently than temporary “construction” increases. *Id.* In quiet areas, operational noise could be increased by 20 dB relative to current ambient conditions without any mitigation requirement whatsoever. *Id.* Operational noise can be feasibly mitigated by using a screening procedure to determine whether site-specific analysis and mitigation are required in quiet locations. *Id.* at 6. Mitigation Measure 4.12-2 must be substantially revised in the manner the Salter Report suggests to ensure that long-term oil and gas operations do not result in significant noise increases.

Finally, the Draft SREIR—like the Draft and Final EIRs before it—fails to adequately analyze or mitigate for single-event noise, sleep disturbance, and effects on interior noise levels. Salter Report at 6. In particular, nighttime noise impacts in currently quiet areas could be highly significant; indeed, the Draft SREIR’s measures could even allow potential increases in nighttime noise levels of 35 dB. *Id.*

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The County has belatedly acknowledged that the Project may cause significant increases in noise relative to ambient conditions. As a result, the County may not approve the Project if there are feasible mitigation measures available to reduce or avoid these impacts. Pub. Res. Code §§ 21002, 21002.1(b). As set forth in the Salter Report, the mitigation measures proposed in the Draft SREIR are inadequate to reduce or avoid significant increases in noise. At the same time, the Salter Report shows that there are additional, feasible measures available to better protect County residents from the Project's significant noise impacts. Salter Report at 7.

The County may not avoid its responsibility to evaluate this additional, feasible mitigation by simply declaring impacts significant and unavoidable. *See* Guidelines § 15091(f). As the Court of Appeal has explained, “[b]efore one brings about a potentially significant and irreversible change to the environment, an EIR must be prepared that sufficiently explores the significant environmental effects created by the project. ...[S]imply labeling the effect ‘significant’ without accompanying analysis of the project’s impact ... is inadequate to meet the environmental assessment requirements of CEQA.” *Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1371 (emphasis in original). Rather, the additional feasible measures recommended in the Salter Report must be evaluated in a revised and recirculated noise section of the Draft SREIR, and incorporated into the Project, before the County can consider reapproval.

IV. The Draft SREIR Fails to Correct the Deficiencies in the Cumulative Health Risk Assessment.

The Cumulative (or “Multi-Well”) Health Risk Assessment (hereafter “CHRA”) prepared for this Project remains inadequate under CEQA.

The CHRA’s continued failings have a long history. As the Court of Appeal recounted, the County released a Health Risk Assessment with the Draft EIR in July 2015. *King and Gardiner Farms, LLC v. County of Kern*, No. F077656 (Cal. App. 5th Dist. Feb. 25, 2020; as modified on denial of rehearing Mar. 20, 2020), slip op. at 127.³² The Division of Oil, Gas and Geothermal Resources submitted a comment letter stating that the Health Risk Assessment should address cumulative impacts. *Id.* In September 2015, the County released responses to comments stating that it had reviewed a “Cumulative” Health Risk Assessment and concluded setback distances were adequate to protect homes, schools, and other sensitive receptors. *Id.* at 128.

As the Court of Appeal pointedly noted, however, the referenced “Cumulative” Health Risk Assessment “*did not exist*, was not available in the appendix [to the Final EIR], and was not discussed further” in other responses to comments. Op. at 128 (emphasis added); *see id.* at 129 (discussing County’s admission that “no cumulative Health Risk Assessment had been prepared”

³² Further references to “Opinion” or “Op.” in this section are to unpublished portions of the appellate court’s February 25, 2020 slip opinion.

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at the time responses to comments describing that document's purported conclusions were provided in September 2015). The County finally made available an internet link to the CHRA on November 2, 2015, a mere five business days before the Board of Supervisors held its final public hearing on the Project. Op. at 128-29; AR:155681, 155782-83.

The Court of Appeal found that the County's "misstatements" regarding the document created "the appearance that the County had decided the results of the Multi-Well Health Risk Assessment before it existed, which suggests the document was little more than a post hoc justification." *Id.* at 131. The court held that this omission of information rendered the Draft EIR "fundamentally and basically inadequate," thwarted meaningful public review and participation, and ordered that the Multi-Well Health Risk Assessment be included in any revised EIR recirculated for public comment. *Id.*

Despite the grossly inadequate amount of time allowed for review, Dr. Phyllis Fox prepared comments addressing the CHRA dated November 6, 2015. *See* AR:155681-85. Dr. Fox concluded that the CHRA did not provide an adequate assessment of cumulative health risk. *Id.* at 155681-82. In particular, Dr. Fox found that the CHRA did not analyze impacts from multiple wells at densities that actually occur in Kern County, but instead relied on unrealistic and artificial assumptions. *Id.* at 155682-84. The CHRA also failed to account for increased well densities in areas where hydraulic fracturing was occurring. *Id.* at 155682. As a result, Dr. Fox found the CHRA's conclusions "unlikely to be correct." *Id.* at 155684. Dr. Fox also identified additional flaws in the CHRA's modeling and conclusions. *Id.* at 155684-85.

The Draft RSEIR fails to address these deficiencies. Instead, it appears the County has chosen simply to recirculate the 2015 CHRA—the same document the Court of Appeal labeled "little more than a post hoc justification" (Opinion at 131)—for comment. *See* Draft SREIR at 4.3-131 to 4.3-133 and Appendix B.³³

Dr. Fox has prepared a supplemental report on the recirculated CHRA, which is attached to this letter and incorporated by reference herein. Fox Report (Ex. DSREIR 3). In her supplemental report, Dr. Fox confirms that the CHRA is the same document belatedly released in November 2015, on which she commented previously. Fox Report at 1-2. Dr. Fox further

³³ The Draft RSEIR states that the Multi-Well Health Risk Assessment "was completed to evaluate potential cumulative health impacts associated with multiple well drilling operations occurring simultaneously." Draft RSEIR at 4.3-131. However, as the Court of Appeal noted, the County conceded during litigation that the Multi-Well Health Risk Assessment "was not a 'cumulative impact analysis' within the meaning of CEQA." Op. at 127, fn. 43. The County cannot now reverse position and claim the exact same document somehow provides an adequate evaluation of cumulative health impacts.

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confirms that neither the County's responses to her previous comments nor the Draft SREIR addresses the flaws she identified in her prior comments. *Id.* at 2-4.

In particular, the Draft SREIR and recirculated CHRA still fail to evaluate health risks based on realistic assumptions about actual well density in Kern County. Fox Report at 2-3. The unrealistic well density scenario in the CHRA assumes only 12.8 wells per square mile, whereas actual well densities in Kern County range from 3 to 633 wells per square mile. *Id.* at 3 and Attachment 1 (Jordan & Benson 2008). The CHRA thus assumes well densities near the lowest end of the actual range. At the upper end of the range, and even at the midpoint, cancer risks would be far in excess of significance thresholds and therefore "highly significant." Fox Report at 3. As Dr. Fox concludes, the Draft SREIR fails to include any mitigation or conditions necessary to reduce or avoid significant health risks from exposure to multiple wells. *See id.* Indeed, the CHRA simply "fails to analyze chronic or acute impacts of cumulative well drilling." *Id.* at 4.

In addition, a memorandum by Dr. H. Andy Gray, submitted as an exhibit to comments on the Draft SREIR prepared by Earthjustice, identifies further errors and inconsistencies in the CHRA's analysis that appear to result in a systematic underestimation of impacts. According to the memorandum, (1) emissions rate data used to scale model results were not properly documented; (2) modelers failed to use readily available correction mechanisms to more accurately account for calm winds, resulting in an underestimation of impacts; (3) modelers used extremely high temperatures and exit velocities for diesel equipment exhaust, leading the model to anticipate very high plume rise and potentially underestimate pollutant concentrations; (4) wells were actually modeled at distances from the receptor that differ from those stated in the CHRA, leading to a lower estimation of pollutant concentrations; and (5) lower emissions rates were used for the ring of modeled sources closest to the receptor as compared to the other, more distant modeled sources, again reducing estimated pollutant concentrations. Memorandum from Dr. H. Andy Gray, Gray Sky Solutions, to Colin O'Brien, Earthjustice, Re Comments Regarding ECS's Cumulative Health Risk Assessment (HRA) for the Kern County Final EIR – Proposed Drilling and Oil and Gas Operations (Sept. 15, 2020).

Accordingly, the CHRA fails as an informational document under CEQA and its conclusions regarding the significance of health risks from exposure to multiple wells are unsupported by substantial evidence. The document must be revised to comply with CEQA's requirements and recirculated again before the County can consider reapproving the Project.

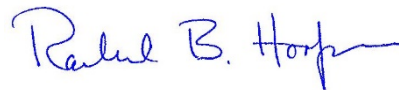
V. Conclusion

For all of the reasons described above, and in the attached reports, the Draft SREIR fails to remedy the deficiencies identified by the appellate court or to comply with the requirements of CEQA. King and Gardner Farms, LLC respectfully requests that the County correct these errors and recirculate a revised draft SREIR for public review and comment.

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Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP



Rachel B. Hooper

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List of Exhibits:

- | | |
|------------------|---|
| Exhibit DSREIR 1 | J. David Hughes, Comment on Draft Supplemental Recirculated Environmental Impact Report, Revisions to the Kern County Zoning Ordinance – 2020 A, September 2020. |
| Exhibit DSREIR 2 | Charles M. Salter Associates, Inc., Kern County Zoning Ordinance Revision, Acoustical Comments On Draft Supplemental Recirculated Environmental Impact Report, September 2020. |
| Exhibit DSREIR 3 | Phyllis Fox, Report on the Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020 A, focused on Oil and Gas Local Permitting, September 2020. |

Exhibit DSREIR 1

Comment
on
Draft Supplemental Recirculated Environmental
Impact Report
Revisions to the
Kern County Zoning Ordinance – 2020 A
(Focused on Impact 4.2-1 – Clustered well drilling
on Agricultural Lands)

Prepared
for
Shute, Mihaly & Weinberger LLP

Prepared by

J. David Hughes
President
Global Sustainability Research Inc.
780 Whaletown Road, Box 237
British Columbia, Canada, V0P 1Z0

September 14, 2020

**Comment on requirement for clustered drilling within “Impact 4.2-1 of Draft
Supplemental Recirculated Environmental Impact Report Revisions to the Kern County
Zoning Ordinance – 2020 A”**

J. David Hughes

I am an earth scientist who has studied the oil, gas and coal resources of the U.S. and Canada for more than 40 years, including 32 years with the Geological Survey of Canada as a scientist and research manager. I hold Honors Bachelors and Masters degrees in geology from the University of Alberta. For the past 12 years, I have headed Global Sustainability Research Inc., a consultancy that has studied unconventional oil and gas resources across the U.S. and Canada, including California. I am a board member of Physicians, Scientists and Engineers for Healthy Energy and a fellow of the Post Carbon Institute and the Canadian Centre for Policy Alternatives.

The “Draft Supplemental Recirculated Environmental Impact Report Revisions to the Kern County Zoning Ordinance” (henceforth referred to as the SREIR) argues that clustered drilling of oil and gas wells in agricultural land areas of Kern County (“County”) is not feasible and would increase emissions, and therefore that “[n]o feasible mitigation is available to reduce this impact to a less than significant level.”¹

In fact, clustering oil and gas wells is not only feasible, but would likely result in efficiencies for operators by allowing for shared infrastructure such as roads and gathering pipelines at a single location. Using trends in Kern County oil and gas drilling and best-practices in other oil and gas jurisdictions, this comment responds to the specific claims in the SREIR used to justify the County’s position.

1. SREIR Claim (page 4.2-31): “[Clustered wells] would entail the use of directional and horizontal drilling techniques, which may not be technologically or economically feasible, depending on geologic conditions.”

Response: Directional and horizontal drilling have become the norm in Kern County over the past decade. Figure 1 illustrates the distribution of directional, horizontal and vertical wells drilled in Kern County since 2009.

¹ Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance, August, 2020, https://psbweb.co.kern.ca.us/UtilityPages/Planning/EIRS/OG_SREIR/Vol1-2/Oil_Gas_SREIR_Vol%201_04.2_Agricultural%20Resources.pdf

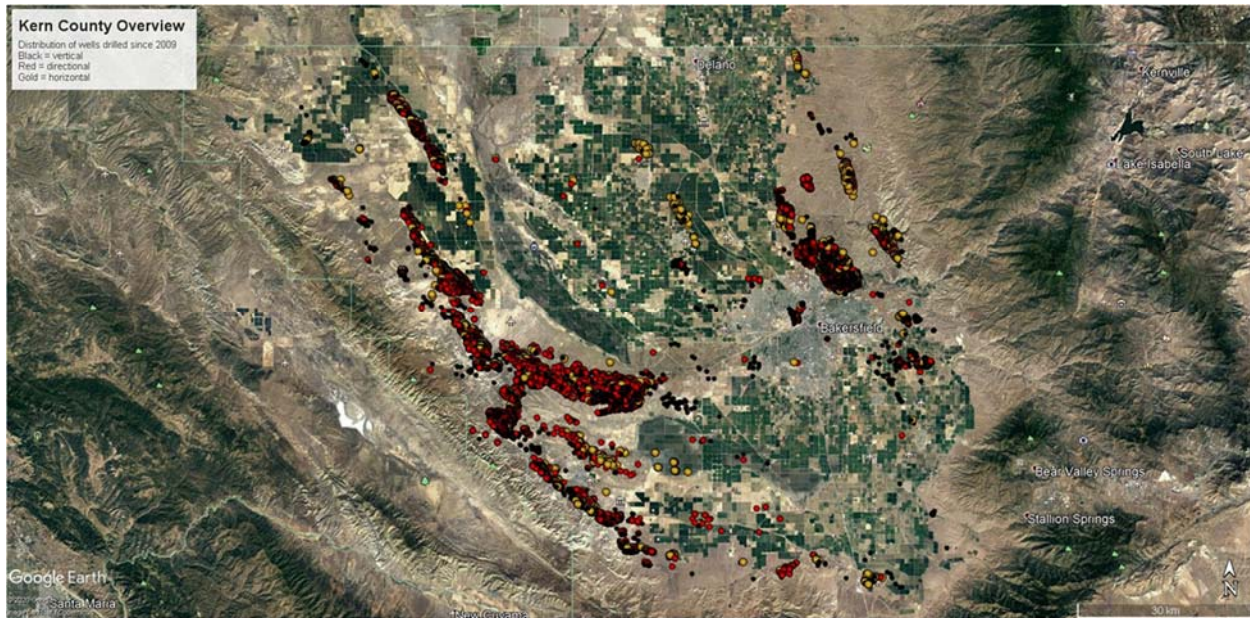


Figure 1 – Distribution of directional, horizontal and vertical wells drilled in Kern County since 2009.² Black dots are vertical wells, gold dots are horizontal wells, and red dots are directional wells. (Scale bar at lower right.)

Figure 2 illustrates drilling by well type from 2000 to 2020. Whereas 76% of all wells drilled in 2000 were vertical, in 2020, directional drilling accounted for 76% of wells, horizontal drilling accounted for 7%, and vertical wells accounted for just 17%.

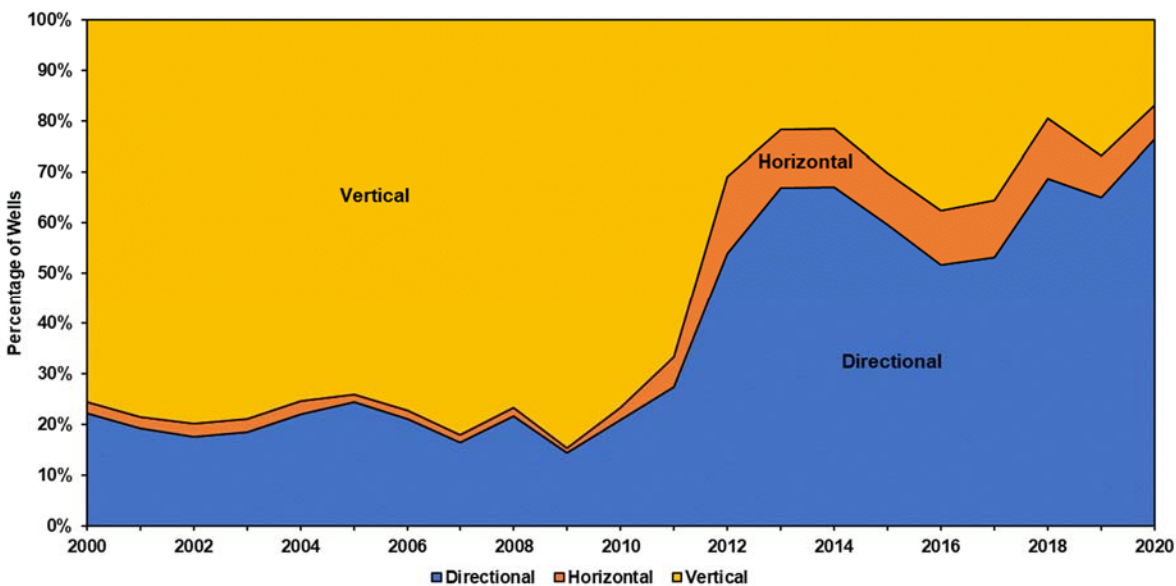


Figure 2 – Drill type by year of first production in Kern County, 2000 through 2020.³

² Based on data from Enverus retrieved September 5, 2020.

³ Based on data from Enverus retrieved September 5, 2020.

It is clear that not only are directional and horizontal drilling feasible, they have been widely adopted. In the few cases where directional and horizontal drilling may not be feasible owing to reservoir configuration, operators should be required to make a clear case to regulators for an exemption.

2. SREIR Claim (page 4.2-32): “Furthermore, mandatory well clustering would increase the potential for injury on and around the clustered well pad, increase traffic and related air emissions, and intensify the habitat disruption posed by densely clustered well drilling pads that may be necessary to conduct both horizontal and vertical drilling operations.”

Response: Multi-well pad drilling has become the standard in many oil and gas jurisdictions. Figure 3 illustrates a typical multi-well pad in Canada in which 18 wells have been drilled from a 22-acre well pad. Multi-well pads are utilized in many oil and gas jurisdictions in the U.S., including the Permian Basin of west Texas and southeast New Mexico, the Bakken Play of North Dakota, the Niobrara Play of Colorado and others.



Figure 3 – Example of a multi-well pad from the Montney Formation in Canada. Eighteen wells have been drilled on this 22-acre pad. (Scale bar at lower right.)

Multi-well pad drilling allows the use of common infrastructure such as roads and gathering pipelines. This frequently results in cost savings and greatly reduces the surface land footprint compared to construction of many individual well pads along with their associated roads and pipelines. There is no evidence of increased injuries associated with multi-well pads as claimed in the SREIR. Nor is there any evidence of intensified habitat disruption as claimed by the SREIR; indeed, clustered pad drilling would reduce habitat disruption.

Multi-well pad drilling is feasible, and has already been implemented in some parts of Kern County. Figure 4 illustrates several well pads, each with two or more wells, on agricultural land in the Wasco area. One pad has four horizontal wells, another has two horizontal and two vertical

wells, and several others have two horizontal wells each. Clustered well regulations for any future development could mandate more wells per pad with pads spaced farther apart to minimize agricultural land disturbance.

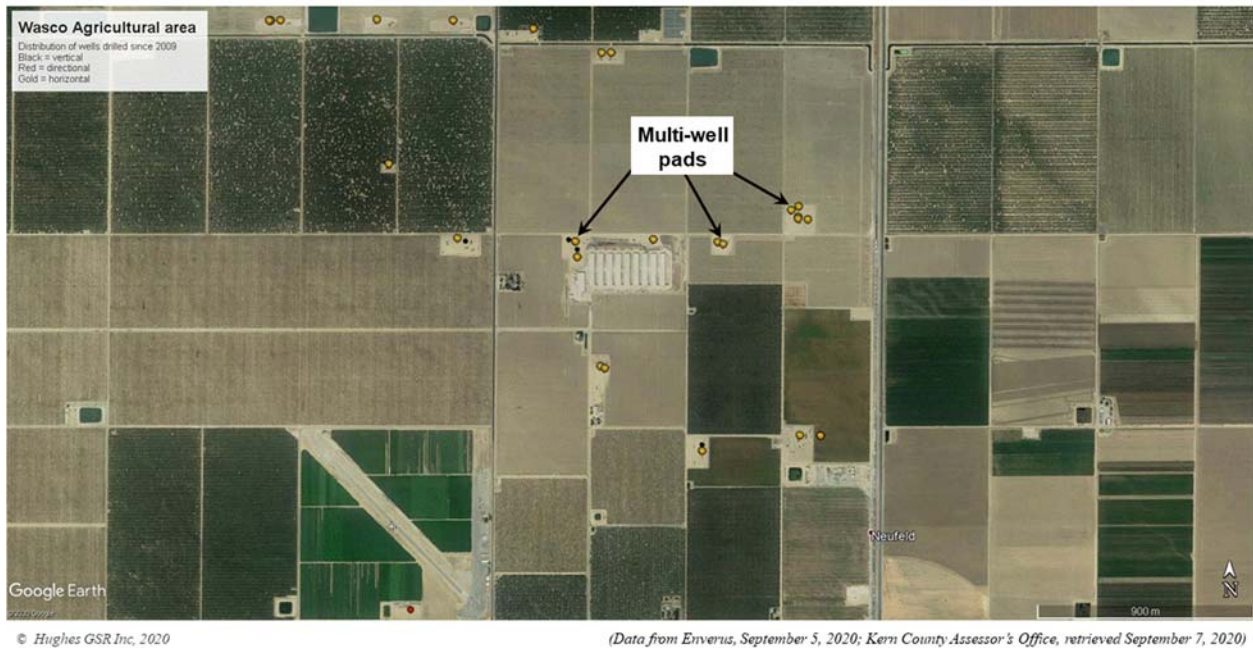


Figure 4 – Examples of multi-well pads in the Wasco area of Kern County showing wells drilled since 2009. Black dots are vertical wells, gold dots are horizontal wells, and red dots are directional wells. (Scale bar at lower right.)

3. SREIR Claim (page 4.2-32): “A mitigation measure mandating the clustering and securing of wells is reasonably expected to require horizontal drilling that would require longer drilling periods to reach the mineral source as compared to a vertical well. This would cause environmental impacts that are potentially greater than would occur if the drilling was allowed vertically on the agricultural land to begin with.”

Response: Building one well pad to drill multiple directional and horizontal wells will reduce emissions and land impacts compared to building multiple single well pads along with the access roads and gathering pipelines needed. Although drilling horizontal and/or directional wells may require a few extra days, constructing multiple single-well pads would likely consume more time overall, along with disturbing more land – given the need to construct road-access and other infrastructure at each single-well pad compared to a single road to serve many wells and other shared infrastructure at a clustered-well pad. Furthermore, emissions from drilling a well are a small proportion of total emissions over a well’s productive life.

4. SREIR Claim (page 4.2-31): “If clustering were required to mitigate Project impacts to agricultural lands, the owners of mineral rights underlying agricultural lands would be forced to access such minerals from adjacent lands were[sic] clustering occurs but which does not overlie the mineral deposits owned by the well permittee that underlie the avoided agricultural lands.”

Response: Mineral tenure data are available from the Kern County Assessor's Office.⁴ They reveal that most individual mineral tenures are quite large; many are 640 acres in area, so, in most cases, clustering should not result in the access problem claimed by the SREIR. Figure 5 illustrates mineral tenure in the central agricultural area of Kern County, along with the distribution of horizontal, directional and vertical wells drilled since 2009.

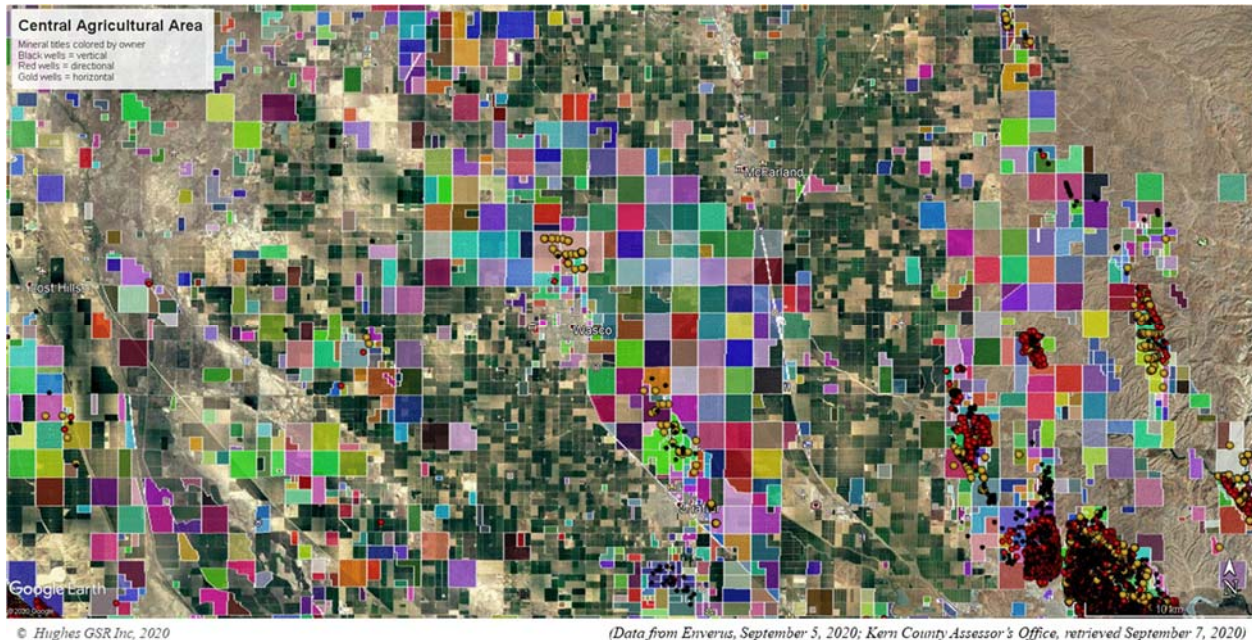


Figure 5 – Distribution of mineral tenure in the central agricultural area of Kern County (colors indicate individual ownership). Also shown are wells drilled since 2009 (black = vertical; red = directional; gold = horizontal).⁵ The larger colored squares are 640 acres in area. (Scale bar at lower right.)

Figure 6 illustrates agricultural land in the Shafter Field north of the town of Shafter. Much of the development there is already from horizontal wells and the mineral tenure does not restrict further development with horizontal wells in most cases.

⁴ Kern County, CA Parcels – Mineral, Kern County Assessor's Office, Mapping Section, <https://koordinates.com/layer/97141-kern-county-ca-parcels-mineral/>.

⁵ Based on data from Kern County Assessor's Office retrieved September 7, 2020, and Enverus drilling data retrieved September 5, 2020.

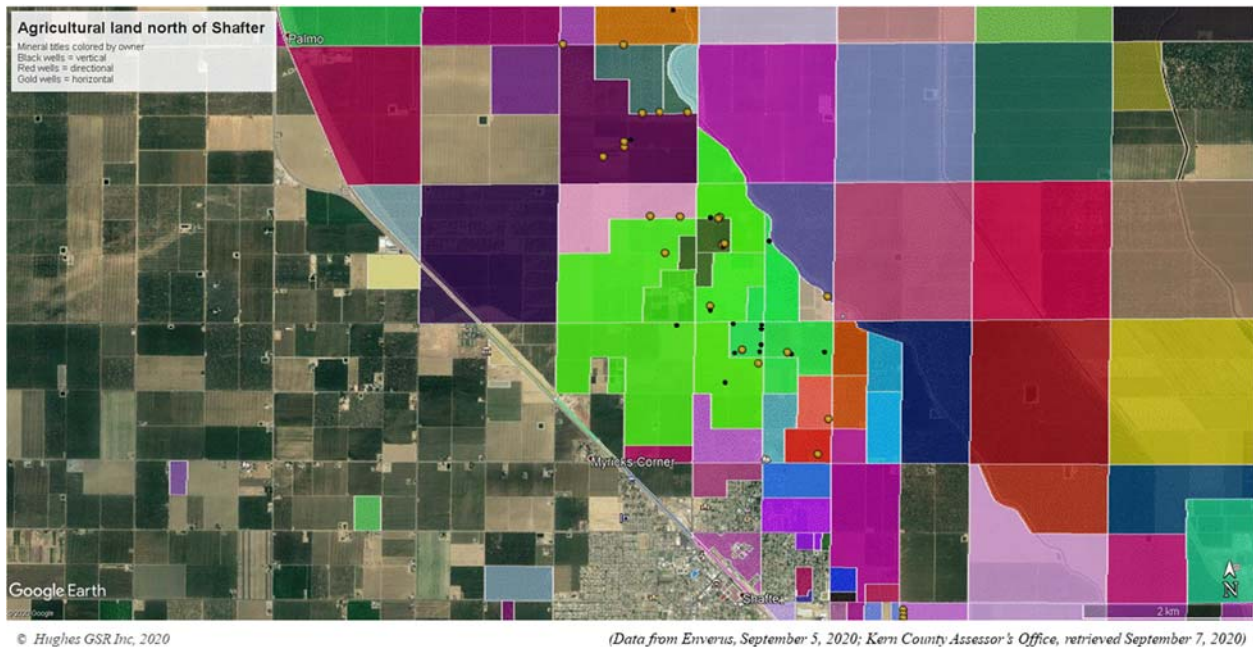


Figure 6 – Distribution of mineral tenure in agricultural area north of Shafter (colors indicate individual ownership). Also shown are wells drilled since 2009 (black = vertical; red = directional; gold = horizontal).⁶ Horizontal wells have been used in much of the area. (Scale bar at lower right.)

In most cases, it is unlikely that clustered well pads with directional and horizontal wells will be constrained by mineral tenure. In the few areas where such drilling may be constrained, operators should be required to provide evidence for an exemption from clustered well regulations.

5. SREIR Claim (page 4.2-31): “. . . one legal lot of agricultural land could have dozens of distinct ownership subsurface leases across the property.”

Response: This claim is not credible in the vast majority of cases given the evidence from mineral tenures provided by the Kern County Assessor’s office.⁷ The SREIR claim (page 4.2-32) that clustered well regulations would constitute the “taking” of a mineral tenure holder’s rights is therefore also not credible. In the very few instances where multiple subsurface leases with distinct owners would prevent the exercise of mineral rights, tenure holders should be allowed to apply for an exemption from clustered well regulations.

Summary

Use of directional and horizontal wells is both feasible and widely practiced in many oil and gas jurisdictions. In fact, directional and horizontal wells have become the dominant form of drilling in Kern County. The arguments in the SREIR therefore have little credibility. Any difficulty

⁶ Based on data from Kern County Assessor’s Office retrieved September 7, 2020, and Enverus drilling data retrieved September 5, 2020.

⁷ Kern County, CA Parcels – Mineral, Kern County Assessor's Office, Mapping Section, <https://koordinates.com/layer/97141-kern-county-ca-parcels-mineral/>.

resulting from the very few cases where mineral tenure or the geometry of the reservoir would preclude horizontal or directional wells from a clustered well pad could be addressed through the use of clustered well regulations. These regulations would clearly set out the procedures and evidentiary standards under which operators could make a case as to why they should be granted permission to drill from a single-well pad.

Exhibit DSREIR 2

Kern County Zoning Ordinance Revision

(Focused on Oil and Gas Local Permitting)

ACOUSTICAL COMMENTS ON DRAFT SUPPLEMENTAL RECIRCULATED ENVIRONMENTAL IMPACT REPORT

15 September 2020

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INTRODUCTION

As you know, we commented on the DEIR and the FEIR for this project and concluded that the impact analyses did not sufficiently address noise. As requested, we reviewed the noise section of the draft Supplemental Recirculated Environmental Impact Report (DSREIR) dated August 2020 (Volume 1, Section 4.12). This report summarizes our review and comments.

EXECUTIVE SUMMARY

In our opinion, the DSREIR still does not sufficiently address potential noise impacts as required by CEQA and would violate the noise goals of Kern County and the City of Bakersfield. Our comments focus on the following issues:

1. The DSREIR fails to protect people from excessive noise by failing to require effective mitigation, failing to require adequate follow-through in the individual site application process, and failing to identify a path for resolution in the event of noise violations and complaints.
2. The construction noise mitigation measure (MM 4.12-1) incorporates a flawed screening procedure based on distance setbacks associated with a noise level of DNL 65 dB. It fails to identify development sites near quieter receptor sites and thus fails to require mitigation to reduce construction noise to the Noise Standard limit of 5 dB above the existing ambient noise level at those sensitive receptors.
3. The operational noise mitigation measure (MM 4.12-2) completely omits the Noise Standard limit of 5 dB above the existing ambient level that is discussed throughout the impact analysis. Thus, it would allow significant increases in ambient noise at quieter sensitive receptors.
4. By failing to limit noise increases to 5 dB above the ambient, the DSREIR would still allow nighttime noise at sensitive receptors to increase by up to 35 dB due to Project activities. The constant noise generated 24 hours per day by many Project activities raises substantial sleep disturbance concerns.

INTRODUCTION

The DSREIR noise section focuses heavily on the analysis of “temporary” construction noise (MM 4.12-1). It marginally addresses “permanent” operational noise (MM 4.12-2). And it still ignores our previous comments made regarding vibration, single-event noise, sleep disturbance, and interior noise levels.

To analyze construction noise, the DSREIR applies two types of significance thresholds. The first is a fixed noise threshold of DNL 65 dB; above that, the impact would be considered significant. The second is a “delta” threshold of 5 dB over the existing ambient (for areas with ambient less than DNL 65 dB). Both are mentioned in the mitigation measure MM 4.12-1. However, only the fixed limit is comprehensively applied in the application process. The 5 dB limit is not applied consistently to sensitive receptors that could see significant increases in ambient noise.

To analyze operational noise, only the fixed threshold is applied. The “delta” threshold is mentioned in the EIR summary commentary, but it is completely ignored in mitigation measure MM 4.12-2. Thus, it allows for significant increases in ambient noise.

SALTER COMMENTS

1. Mitigation, Complaints, and Response

The overriding principle of the Kern County Noise Element (Goal #1) is to “Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.” The City of Bakersfield has an identical noise goal. The DSREIR fails to protect people by failing to require effective mitigation, failing to require adequate follow-through in the individual site application process, and failing to identify a path for resolution in the event of noise violations and complaints. The lack of effective mitigation is discussed in sections 2 through 4. The latter issues are discussed below.

The DSREIR fails to outline an effective application process for individual development sites. Adequate oversight and the clear and public presentation of noise information should be required. Without adequate public review, the community has little opportunity to identify and address development sites that would have a significant impact on local residents. This process should include reasonable requirements to evaluate noise at each site. The DSREIR states that “due to varying ambient noise levels across the Project Area, it is impossible to ensure a predictable increase in ambient noise levels using feasible mitigation measures.” (DSREIR, page 4.12-30, para. 3) This is certainly not impossible. And the feasibility of mitigation measures had not even been addressed in the DSREIR analysis.

The application process could include an initial “spot check” of ambient noise levels at a site. This could be a simple 15-minute measurement during daytime hours. If daytime average noise levels are above 60 dB, then the standard setback thresholds could be applied. However, if daytime average noise levels are below 60 dB, this would trigger a requirement for additional study, longer measurements to set the incremental noise increase limit (i.e., 5 dB above the existing ambient DNL, a 24-hour average), and the identification of mitigation measures appropriate for that site. The goal is to avoid increasing ambient noise levels more than 5 dB above any existing ambient noise levels that are below DNL 65 dB. This would be a low-cost screening method to identify sites that have significant potential to impact the surrounding communities and residents and to apply reasonable oversight to potentially problematic locations.

The DSREIR identified 18 study sites that are claimed to be “representative of typical conditions within the Project Area.” (DSREIR, page 4.12-33, para. 3). Ambient noise levels were measured at each of the 18 sites, and only one had a noise level above DNL 65 dB (DSREIR, Table 4.12-3). The other 17 were quieter, extending down to DNL 45 dB. Therefore, due to the likelihood for a large number of sensitive receptors with low ambient conditions, it is reasonable and appropriate to require the aforementioned screening procedure to identify sensitive development sites as part of the application process.

The application review process must also follow through by requiring the applicants to apply a good-faith effort in identifying and incorporating feasible and reasonable mitigation measures to avoid significant impacts on neighbors. An independent review team should be available to peer review site applications with greater potential to cause noise impacts and generate complaints. When development is approved, the community should also have confidence that complaints and noise violations will initiate an effective response to reduce excessive noise levels. Penalties or sanctions should be enforceable for development that fails to meet the noise standards that are established for each sensitive site based on existing ambient noise levels.

2. “Temporary” Construction Noise (MM 4.12-1)

The DSREIR appears to intend to apply both the fixed noise threshold of DNL 65 dB and the “delta” noise threshold of 5 dB or 1 dB over the existing ambient (for existing ambient level either below or above 65 dB, respectively). But the proposed process is flawed and fails to protect all sensitive receptors from excessive noise more than 5 dB over the ambient.

The DSREIR proposes the use of distance setback thresholds for the evaluation of specific development sites (DSREIR, Table 4.12-8) located near sensitive receptors. According to the DSREIR, construction noise would be DNL 65 dB at those distances. Any proposed development site within those setbacks must include an “Acoustic Noise Reduction Report” (DSREIR, page 4.12-37) that identifies mitigation measures that will be implemented to achieve compliance with the “Noise Standard” (DSREIR, page 4.12-36, para. 3).

However, the proposed setback threshold is a flawed screening procedure and will “miss” many development sites that could have a significant impact. As a result, the DSREIR fails to require additional study and mitigation. As a case study, consider well drilling (advancement), which is claimed to generate a noise level of DNL 65 dB at a setback distance of approximately 1,500 ft (DSREIR, Table 4.12-8). According to mitigation measure MM 4.12-1, for a development site beyond 1,500 feet, well drilling could be approved and commence without any further study or mitigation. The construction activity would generate DNL 65 dB at a sensitive receptor just beyond that screening distance. However, if the ambient noise level at that sensitive receptor is notably below DNL 60 dB, the construction noise would be more than 5 dB above the ambient level. As mentioned above, the EIR analysis identified many sensitive receptor sites with quieter ambient noise levels, down to DNL 45 dB. If that was the sensitive receptor in this case study, this unmitigated construction activity, generating approximately DNL 65 dB, would cause a substantial impact, increasing noise by 20 dB over the ambient noise level. A 20-decibel increase in noise is typically perceived as a four-fold increase in loudness.

Clearly, MM 4.12-1 would allow significant increases in ambient noise and violations of the Noise Standard proposed in the DSREIR. The mitigation is inadequate and should be revised to better protect residents from excessive noise and maintain moderate noise levels in accordance with the goals of the Kern County General Plan.

As mentioned above, an easy ambient noise measurement would be a more effective screening test to determine where further mitigation is needed. This improved process would identify sensitive receptors with low ambient noise levels and avoid letting them “fall through the cracks” in the DSREIR’s flawed mitigation plan. Where construction noise would significantly increase the ambient noise level, the development application should include an “Acoustic Noise Reduction Report” along with feasible mitigation measures, such as temporary noise barrier walls or berms and reasonable equipment selection, orientation, or modification.

3. “Permanent” Oil Well Operational Noise (MM 4.12-2)

0008-51

The DSREIR discusses both the fixed noise threshold of DNL 65 dB and the “delta” noise threshold of 5 dB or 1 dB over the existing ambient (for existing ambient level either below or above 65 dB, respectively). However, the proposed mitigation measure MM 4.12-2 only addresses the fixed noise threshold. It effectively ignores the standard of reducing operational noise to be no more than 5 dB over the existing ambient. This is a serious defect in the DSREIR impact analysis and ignores its own stated goals, as highlighted below:

Ambient Increase

The CEQA Guidelines require that noise impacts be evaluated against the standards developed by the pertinent local agency. As discussed above, because Project activities may occur both inside and outside of the boundaries of the MBGP, the noise effects of the Project will be subject to both an absolute limit of 65 dB and an incremental increase standard of 5 dB. While less than 8% of the Project Area is within the MBGP and 90% of Project activities are anticipated to occur in Tier 1 areas, it is appropriate to analyze the incremental increase caused by Project activities on the existing ambient noise level. When a Project activity is proposed in an area with an ambient noise level under 65 dB, the noise impact of that activity will be considered significant if it will increase the ambient noise by more than 5 dB. If the ambient noise is at or above 65 dB, the Project activity may increase the ambient noise level by no more than 1 dB.

(DSREIR, page 4.12-33)

To provide additional detail: operational mitigation measure MM 4.12-2 limits new oil and gas wells to a minimum of 210 feet away from the closest sensitive receptor. At this distance, diesel-powered well production is claimed to generate a noise level of DNL 65 dB (DSREIR, Table 4.12-13). However, this approach ignores sensitive receptors that have existing ambient noise levels lower than 65 dB. For a neighbor with an ambient noise level of DNL 45 dB, a diesel-powered well facility located at this minimum setback would increase noise by 20 dB.

0008-52

As an aside, it is also unreasonable for the DSREIR to address permanent operational noise impacts in a manner that is less strict than that proposed for “temporary” construction noise. The construction noise mitigation measure (MM 4.12-1) at least identifies a Noise Standard based on a limit of 5 dB above the ambient for some sites (those within the DNL 65 dB setback). However, the operational noise mitigation measure (MM 4.12-2) only effectively limits oil and gas facility noise via minimum setbacks to a noise limit of DNL 65 dB. It ignores the potentially significant increase in noise at quieter sensitive receptors. Thus, in many cases, less mitigation would be applied to operational noise than would be applied to construction.

Clearly, using the DSREIR proposed distance setbacks do not achieve the goal of protecting people from excessive noise, nor does it maintain moderate noise levels in accordance with Kern County noise goals (Kern County Noise Element, Goal #1). Therefore, the DSREIR and proposed mitigation measure MM 4.12-2 are insufficient and need to be revised. Additional information supporting this comment can be found in our previous comments on the FEIR and the DEIR (see letters dated 9 September 2015 and 3 November 2015, respectively). This mitigation measure has remained virtually unchanged since the DEIR, and our previous comments still apply.

0008-53

Operational noise should be controlled to the Noise Standard established in the EIR that includes a limit of 5 dB over the existing ambient (for sites quieter than DNL 65 dB). The mitigation measure should direct the reviewing agency to an application process that identifies quiet sensitive receptor areas. As mentioned above, an ambient noise measurement would be a more effective screening procedure to determine where further mitigation is needed to address the many potential development sites with sensitive receptors with ambient noise levels below DNL 65 dB. In addition, the DSREIR should require that site-specific mitigation measures be identified during the application process and incorporated into individual projects as needed to meet the Noise Standard. Several feasible mitigation measures are available and are even discussed elsewhere in the DSREIR (though, they are omitted from MM 4.12-2).

4. Additional Concerns

0008-55

Our concerns that DEIR did not adequately analyze or mitigate for single-event noise, sleep disturbance, and interior noise levels were not sufficiently addressed in the FEIR's response to comments. They were also not addressed in the DSREIR. The related analyses in our 9 September 2015 letter regarding these issues remain unchanged. The most alarming of these concerns is the lack of impact analysis on nighttime noise and sleep disturbance. We understand that operational noise and many construction activities would occur 24 hours per day.

The EIR found that ambient noise levels, especially nighttime noise levels (DEIR, Appendix V), in the Project Area can be rather low. The proposed mitigation (MM 4.12-1 and 4.12-2) only effectively reduces project construction and operational noise to DNL 65 dB and an hourly noise level of 60 dB at nearby noise-sensitive receptors (e.g., residential land-uses). Comparison data between the proposed project limits and existing ambient conditions are summarized in Table 1 below.

0008-56

Metric/Basis of Analysis	Outdoor Ambient Noise Levels	Mitigated Project Noise Levels	Projected Increase to Ambient Noise
Day-Night Average Noise Level	As low as DNL 45 dB	DNL 65 dB	+20 dB
Daytime Hourly Noise Levels	As low as 28 dB (L ₉₀)	60 dB	+32 dB
Nighttime Hourly Noise Levels	As low as 25 dB (L ₉₀)	60 dB	+ 35 dB

Due to the poor or missing implementation of a Noise Standard based increases in ambient noise, this DSREIR mitigation would still allow potential increases in nighttime noise level up to 35 dB. This is way beyond the 5 dB increase significance threshold established in the EIR and promulgated in the Metropolitan Bakersfield General Plan. Exposing residents to such significant increases in noise would also violate Goal #1 in the Noise Element of Kern County's General Plan – to protect people from excessive noise and maintain moderate noise levels.

CONCLUSION

0008-57

As demonstrated above, the DSREIR did not fully address our comments on the DEIR or FEIR. In our professional opinion, the DSREIR's noise impact analysis and mitigation measures still do not adequately address noise concerns. The DSREIR claims to incorporate a Noise Standard that limits excessive increases in ambient noise. However, it fails to follow through on that pledge with effective mitigation measures.

Of the 18 receptor sites studied in the EIR, 17 had ambient noise levels between DNL 45 dB and DNL 65 dB. This is a characteristic of the Project Area that should be addressed. At such quiet sensitive receptor sites, the insufficient mitigation proposed in the DSREIR would allow the Project to significantly increase average daily noise levels by up to 20 dB. Furthermore, it would allow all permanent, operational activities to increase nighttime noise levels by up to 35 dB, raising concerns of sleep disturbance. The limit of 5 dB above the ambient is repeatedly established as a Noise Standard in the commentary discussion of the DSREIR, but it is either poorly implemented (MM 4.12-1) or effectively abandoned (MM 4.12-2) in the proposed mitigation measures even though reasonable mitigation could be implemented. The County instead should consider the following mitigation process, which in our view would be both reasonable and feasible:

- A. Start with an inexpensive screening test by measuring noise levels for as little as 15 minutes at the sensitive receptors located nearest a proposed development site.
- B. Based on that screening result, applicants can easily identify whether their proposed operations will increase noise at sensitive receptors by more than 5 dB (or by more than 1 dB if the ambient noise level is greater than DNL 65 dB).
- C. If such an increase will occur, either the operation can be relocated to a sufficient distance or mitigation can be incorporated into an Acoustic Noise Reduction Report to meet the 5 dB standard. Reasonable mitigation might include noise barrier walls, berms, enclosures, equipment orientation and modification, or other more detailed sound reduction measures.

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Exhibit DSREIR 3

**Report on the
Draft Supplemental Recirculated Environmental Impact Report
for Revisions to the Kern County Zoning Ordinance - 2020 A,
focused on Oil and Gas Local Permitting**

Prepared
for
Shute, Mihaly & Weinberger LLP

Prepared by

Phyllis Fox, Ph.D., PE
Consulting Engineer
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September 11, 2020

**Report on the
Draft Supplemental Recirculated Environmental Impact Report
for Revisions to the Kern County Zoning Ordinance – 2020 A,
focused on Oil and Gas Local Permitting**

I commented on the air quality analysis contained in the Final Environmental Impact Report (FEIR) for revisions to Kern County Zoning Ordinance – 2015(C) focused on oil and gas permitting.¹ The FEIR relied on a cumulative health risk assessment (CHRA) that was not included in the FEIR. On October 23, 2015, the County was notified that the referenced CHRA had not been included among the FEIR materials posted online, and the document was requested.² The County responded by email with a link to the 1,691-page HRA five business days in advance of the public hearing on the Project, an insufficient amount of time for anyone to adequately review the subject document.

My preliminary review of the CHRA identified a major problem with the cumulative scenario that was evaluated:³

The cumulative scenario is based on only 48 wells, drilled in concentric circles around a sensitive receptor, with 12 wells within 1/8 miles, 12 wells within ¼ mile, 12 wells within ¾ miles, and 12 more a mile away.³²³ The area of a circle with a 1 mile radius is 2,011 acres. Thus, the cumulative scenario is based on only 0.02 wells per acre, a very very low number. Figures 4 to 7 show the typical density of conventional wells in existing Kern County oil fields. Further, Kern County is currently the “epicenter” of well stimulation.³²⁴ The density of hydraulically fractured wells is typically high where they do occur, higher than for conventional wells. Thus, where hydraulically fractured wells occur, sensitive receptors are likely to be close to a large number of such wells.³²⁵

I further noted that:⁴

The EIR does not contain any conditions that would assure the HRA's assumed well density is met. The cumulative HRA assumes that an off-site sensitive receptor would only be exposed to emissions from 48 wells arranged in concentric circles. This is the heart of the cumulative HRA and as demonstrated by the photographs in Figures 4 to 7, is unlikely to be correct.

The County's November 8, 2015 response to my Comment 5-e failed to address my comments on well density.⁵ It states:⁶

¹ Phyllis Fox, Report on Final Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C), Focused on Oil and Gas Local Permitting, November 6, 2015 (Fox Comments), Administrative Record (“AR”) Bates 155605-155686.

² AR Bates 155782-83.

³ Fox Comments, AR Bates 155682.

⁴ Fox Comments, AR Bates 155684.

The cumulative HRA in Appendix M-2 considered drilling activities for concentric circles of wells around a receptor to assess cumulative impacts. Well drilling, drilling mud sump emissions and well reworking emissions were considered. Wells were conservatively located at distances of 0.125, 0.25, 0.5 and 1 mile from the receptor. Twelve 13,000 deep wells were assumed at each distance. At 0.25 miles from the central receptor, the well density would be approximately 0.75 wells per acre (24 wells located in 31.4 acres). Closer to the central receptor, the well density

would be even greater. The density would be lower further away, but impacts would also be lower and thus much less of a factor.

This does not address my comment because it fails to disclose the actual well density in Kern County, which is substantially higher, and fails to revise the cumulative HRA accordingly. Further, this response fails to impose any conditions that would limit well density to those assumed in the cumulative HRA.

The County released a Supplemental Recirculated EIR (SREIR) for the project in August 2020.⁷ The Cumulative HRA (referred to as the Multi-Well HRA in the SREIR) is in Appendix B (starting at page pdf 167 of volume 2).⁸ The cumulative HRA is discussed in Chapter 4.3 of the SREIR, beginning at page 4.3-131, captioned "Multi-Well HRA". The cumulative HRA in the SREIR is identical to the cumulative HRA that I reviewed in 2015 and that I commented on in my 2015 comments. The SREIR concludes that minor updates and changes that have been made to HRA methodology and modeling and to OEHHHA HRA guidance since 2015 do not affect the analysis in the 2015 HRA.⁹

The SREIR also does not address my comments on well density: (1) the well density of 0.02 wells per acre is inconsistent with actual density and (2) the SREIR fails to include any conditions requiring that the density assumed in its Cumulative HRA are met. Instead, the SREIR reiterates the inadequate information in the FEIR without responding to my comments:¹⁰

⁵ Letter from Jennifer L. Hernandez, Holland & Knight LLP, Re: "Late Hit Document Dump" by Shute, Mihaly & Weinberger, November 8, 2015, AR Bates 158893 – 158895.

⁶ AR Bates 158936-158937.

⁷ Kern County Planning and Natural Resource Department, Draft Supplemental Recirculated Environmental Impact Report Revisions to Title 19-Kern County Zoning Ordinance – (2020A), Focused on Oil and Gas Local Permitting, Volume 1, Chapters 1 through 11, Revisions to Title 19 – Kern County Zoning Ordinance – (2020A), Focused on Oil and Gas Local Permitting, August 2010; <https://kernplanning.com/environmental-doc/oil-and-gas-sreir/>.

⁸ DSREIR, Volume 2, Appendix B, Health Risk Assessments, Cumulative Health Risk Assessment Kern County Final EIR – Proposed Drilling and Oil and Gas Operations, October 2015, pdf 167; https://psbweb.co.kern.ca.us/UtilityPages/Planning/EIRS/OG_SREIR/Vol1-2/Oil_Gas_SREIR_Vol%202_Appendices.pdf.

⁹ DSREIR, p. 4.3-133.

¹⁰ DSREIR, p. 4.3-131. See EIR, Appendix M-2, p. 3.

The Multi-Well HRA assumed that up to 48 individual 13,000-foot wells would be drilled in concentric circles around a sensitive receptor. Twelve wells would be 1/8 of a mile or 660 feet away from the sensitive receptor, 12 more wells would be 1/4 of a mile or 1,320 feet away, 12 more wells would be 3/4 of a mile or 3,960 feet away, and 12 more wells would be 1 mile or 5,280 feet away. At 1/4 miles from the central receptor, the well density would be approximately 0.75 wells per acre (24 wells located in 31.4 acres). Closer to the central receptor, the well density would be even greater. Each well was assumed to have a drilling mud sump with emissions conservatively assumed to have a continuous VOC release rate of 0.01 lbs. per hour and those VOCs were further assumed to contain potentially toxic components typically found in crude oil.

This is not new information and does not respond to my comments. The response fails to report actual well density in Kern County oil fields. The scenario analyzed in the HRA is based on 0.02 wells per acre or 12.8 wells per square mile (well/mi²).¹¹ The SREIR fails to impose mitigation requiring that the well density not exceed 0.02 wells per acre, as noted in my November 6, 2015 comments. The actual average spatial density for active wells in Kern County is 3 to 633 wells per square mile (well/mi²).¹² Thus, the scenario analyzed in the HRA is based on the lower end of the range of well density in the County.

If a sensitive receptor were located in an area at the upper end of the range, 633 wells/mi², the cancer health risk would be $633/13 = 49$ times higher than disclosed in the HRA. The SREIR reported a cancer risk of 9.3 in one million, below the SJVAPCD's threshold of 20 in one million.¹³ Assuming the upper end of the well density range, 633 well/mi², the cancer risk would be 453 in one million,¹⁴ which is highly significant. Assuming the mid-point well density of 318 wells/mi²,¹⁵ the cancer risk would be 227 in one million,¹⁶ which is also highly significant.

In sum, assuming well densities that actually occur in Kern County, cumulative cancer risks are highly significant, requiring mitigation. The SREIR fails to impose mitigation requiring that the well density not exceed 0.02 wells per acre and fails to include any mitigation for significant cancer risks for the higher well densities present in Kern oil fields.

The cumulative HRA in the SREIR is identical to the cumulative HRA produced 5 business days in advance of the public hearing on the Project. The only new information is a memorandum from the County's consultant, dated April 15, 2020,

¹¹ $(0.02 \text{ well/acre})(\text{acres}/0.0015625 \text{ m}^2) = \mathbf{12.8 \text{ wells/mi}^2}$.

¹² Preston D. Jordan and Sally M. Benson, 2008. Well Blowout Rates and Consequences in California Oil and Gas District 4 from 1991 to 2005: Implications for Geological Storage of Carbon Dioxide, Lawrence Berkeley National Lab Report LBNL-745E, p. 2; <https://www.osti.gov/servlets/purl/935414>. Attachment 1.

¹³ DSREIR, p. 4.3-133.

¹⁴ Revised cancer risk using upper end of well density = $(9.3 \text{ in one million})(633/13) = \mathbf{453 \text{ in one million}}$.

¹⁵ Mid-point well density = $(3+633)/2 = \mathbf{318 \text{ well/mi}^2}$.

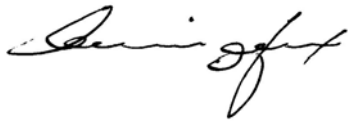
¹⁶ Revised cancer risk using the mid-point well density = $(9.3 \text{ in one million})(318/13) = \mathbf{227 \text{ in one million}}$.

discussing "Health Risk Assessment Guideline Changes Since 2015,"¹⁷ along with an attachment describing modeling changes.¹⁸ This new information concludes that "none of the changes or updates from the three regulatory agencies are believed to potentially alter the conclusions of the 2015 Kern County study." I agree.

Finally, the cumulative HRA fails to analyze chronic or acute impacts of cumulative well drilling, and thus fails as an informational document under CEQA.

In sum, my November 2015 comments on the cumulative HRA stand unrebutted in the record. Further, based on actual well density in Kern County, the cumulative cancer risks are highly significant. The changes in the HRA guidelines and modelling would not reduce this significant impact.

Sincerely,

A handwritten signature in black ink, appearing to read "Phyllis Fox", with a stylized, cursive script.

Phyllis Fox, Ph.D., PE

¹⁷ DSREIR, Volume 2, Memorandum from Erin Sheehy, ECS, to Western States Petroleum Association, Re: Health Risk Assessment Guideline Changes Since 2015, April 15, 2020, pdf 185 (Sheehy Memo).

¹⁸ Sheehy Memo, Attachment A, Summary of Specific Modeling Updates Since 2015, pdf 187.

ATTACHMENT 1

Well Blowout Rates and Consequences in California Oil and Gas District 4 from 1991 to 2005: Implications for Geological Storage of Carbon Dioxide

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Abstract

Well blowout rates in oil fields undergoing thermally enhanced recovery (via steam injection) in California Oil and Gas District 4 from 1991 to 2005 were on the order of 1 per 1,000 well construction operations, 1 per 10,000 active wells per year, and 1 per 100,000 shut-in/idle and plugged/abandoned wells per year. This allows some initial inferences about leakage of CO₂ via wells, which is considered perhaps the greatest leakage risk for geological storage of CO₂. During the study period, 9% of the oil produced in the United States was from District 4, and 59% of this production was via thermally enhanced recovery. There was only one possible blowout from an unknown or poorly located well, despite over a century of well drilling and production activities in the district. The blowout rate declined dramatically during the study period, most likely as a result of increasing experience, improved technology, and/or changes in safety culture. If so, this decline indicates the blowout rate in CO₂-storage fields can be significantly minimized both initially and with increasing experience over time. Comparable studies should be conducted in other areas. These studies would be particularly valuable in regions with CO₂-enhanced oil recovery (EOR) and natural gas storage.

Keywords: geological carbon dioxide storage, thermally enhanced oil recovery, well leakage, well blowout, California

Introduction

Migration up abandoned and active wells is considered to pose perhaps the greatest risk of leakage for geological storage of CO₂ (Gasda et al. 2004; Benson et al. 2005). Well blowouts are formally defined as “the uncontrolled flow of well fluids and/or formation fluids from the well bore to the surface (surface blowout), or into lower-pressured subsurface zones (underground blowout; Hauser and Guerard 1993).” The “Underground geological storage” chapter in the IPCC special report on carbon dioxide capture and storage (Benson et al. 2005) concluded that the local risks of geological CO₂ storage would be similar to existing activities. Specifically, the IPCC report stated

With appropriate site selection informed by available subsurface information, a monitoring program to detect problems, a regulatory system, and the appropriate use of remediation methods to stop or control CO₂ releases if they arise, the local health, safety and environment risks of geological [CO₂] storage would be comparable to risks of current activities such as natural gas storage, EOR, and deep underground disposal of acid gas.

When the IPCC special report was completed, a systematic, quantitative assessment of risks associated with the so-called industrial analogs for geological storage, such as natural gas storage and CO₂-enhanced oil recovery (EOR), had not been undertaken. Similarly, a literature

search did not find studies of blowout frequency in the peer-reviewed literature of the last decade. Therefore, this study was undertaken to gain a better understanding of the risks of well blowouts in the oil industry—one type of event which sometimes results in local health, safety, and environmental impacts—and discuss the relevance of this understanding to geologic CO₂ storage.

This paper analyzes the frequency and, more generally, the consequences of surface blowouts occurring in Oil and Gas District 4 in California from 1991 to 2005. The goal of this study is to gain perspective on leakage of CO₂ from storage fields to the surface via wells. The majority of District 4's oil production was by thermally enhanced recovery, which involves injecting large quantities of steam. While District 4 wells experience different pressure, thermomechanical, and chemical conditions than expected for wells in future CO₂-storage fields, analysis of blowouts from District 4 wells provides useful insights and comparisons from which to begin to assess the probability for leakage of CO₂ to the surface via wells, and the potential consequences of this leakage.

Background

Oil production from District 4

The location of California Oil and Gas District 4 is shown in Fig. 1. Oil production in the district dates back to the late 1800s (San Joaquin Geological Society 2007). All of the oil fields in Kern County occur in the southern San Joaquin Valley, which is located between the southern extent of the Coast Ranges and the Sierra Nevada. Nearly all of these fields are in the western half of Kern County, as shown in Fig. 2.

California was third among the states in total oil production for the 1991–2005 period (Energy Information Administration 2007). Statistics for oil production in District 4 from 1991 to 2005 are provided in Table 1 and Fig. 3, showing that District 4 is a prolific oil and gas producer (California Division of Oil, Gas and Geothermal Resources 1992–2006; Energy Information Administration 2007). Approximately three quarters of the oil production wells in California (excluding the Federal offshore wells) are located in District 4. Three-fifths of the oil produced in District 4 results from thermal recovery via steam injection. Steam injection occurred during part or all of the study period in 17 of the approximately 80 oil fields in the district. Among these fields are four of the five largest in the district and five of the ten largest in the state. Because of its size and the predominance of thermal oil recovery via steam injection, District 4 provides a significant area for analysis of blowouts in general and blowouts associated with fluid injection in particular.

Like other flooding methods, steam injection during thermally enhanced recovery provides an increased pressure drive for production of oil. In addition, the steam heats the oil and thus lowers its viscosity, which enhances flow during production. The steam also causes distillation of the lighter oil fractions. These lighter fractions condense ahead of the steam front, dissolving some of the residual oil, which further promotes flow. The two predominant methods of thermally enhanced recovery are cyclic-steam injection and steam flooding. In cyclic-steam injection, steam is injected for a short time period, and then the well is shut in to allow the previously injected steam to heat the formation and oil. The well is subsequently placed on production to recover the liberated oil, and then returned to steam injection to repeat the process. In steam flooding, steam is continually injected into one set of wells while oil is produced from interspersed wells.

The average spatial density for all active wells, and for steam-injection wells, in thermal fields during the study period was 104 and 28 per square kilometer (km²) [269 and 73 per square mile (mi.²)], respectively. This corresponds to an average well spacing of 98 and 189 m (321 and 620 ft) assuming a square well pattern. The average density for all active wells ranged from 1 to 244 wells/km² (3–633 wells/mi.²), and from <0.1 to 98 wells/km² (<0.26–255/mi.²) for steam-injection wells on a per-thermal-field basis. These densities correspond to an average well spacing of 1,000–64 m (3,290–210 ft) for all wells and >10,000–101 m (>32,800–331 ft) for steam-injection wells.

Demographics and land use in District 4

Approximately two-thirds of the cities in the San Joaquin Valley portion of Kern County are underlain at least in part by oil fields, as shown in Fig. 2. The population density in Kern County was 36 persons/km² (93 persons/mi.²) in 2000 (US Census Bureau 2007). The population density in western Kern County varied from ~0 to 7,000 persons/km² (~0–18,000 persons/mi.²) as shown in Fig. 4. Oil fields underlie the full range of population densities, but fields with steam injection underlie population densities ranging from 0 to 1,000 persons/km² (0–2,500 persons/mi.²). Most fields, both with and without steam injection, underlie areas with population densities between 0 and 4 persons/km² (0 and 10 persons/mi.²).

The predominant land use in the San Joaquin Valley portion of Kern County is irrigated agriculture, as shown in Fig. 5. The second most predominant land use is open land, shown as “Native classes” in Fig. 5. Such lands are used for a variety of non-irrigated purposes, such as range land. The least predominant land use is urban. Oil fields underlie all three land-use types. The largest fields, as well as most

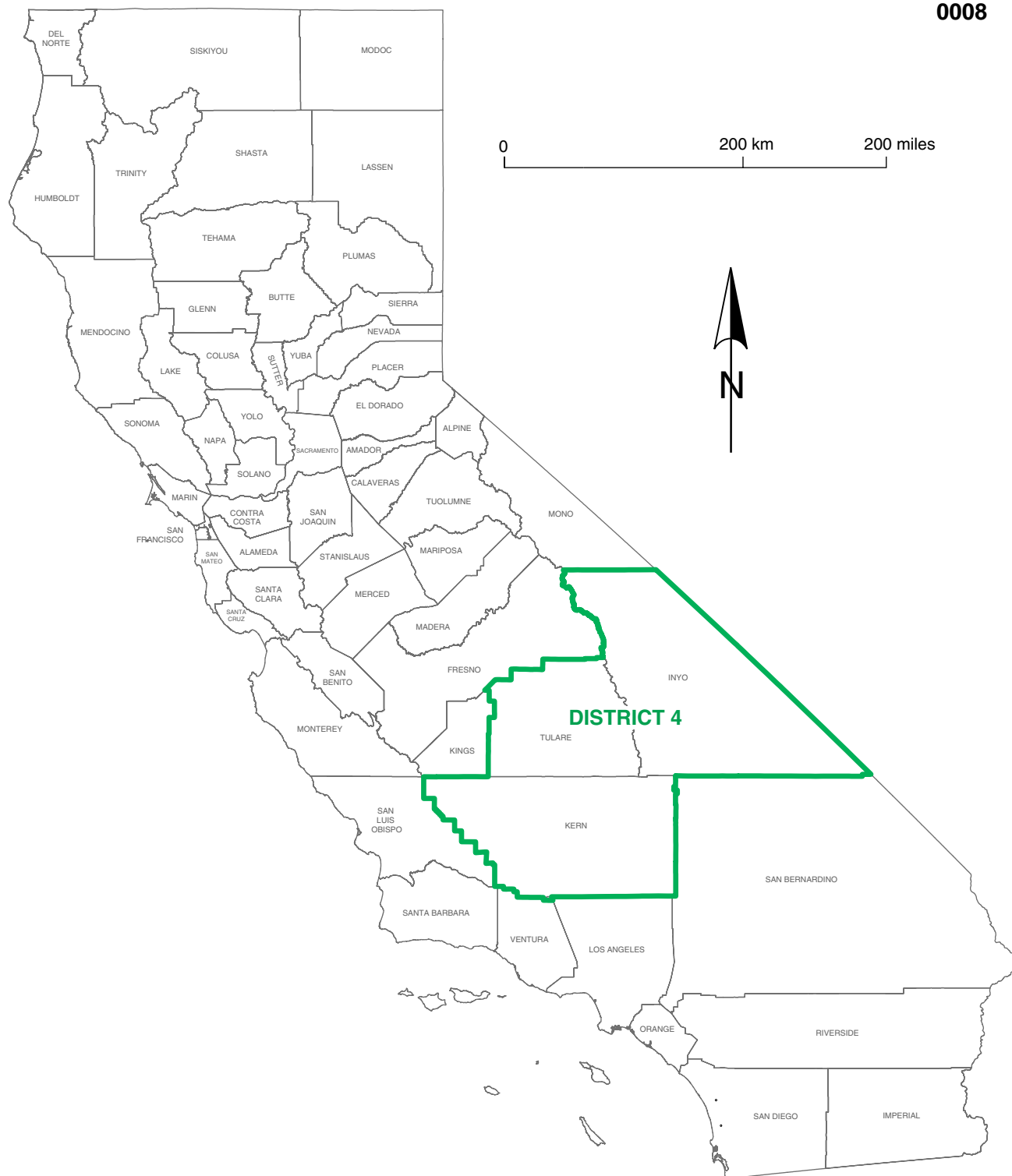


Fig. 1 Location of California Oil and Gas District 4 (courtesy of the California Division of Oil, Gas and Geothermal Resources)

of the fields with steam injection, underlie open lands. Note that the urban land use shown for the fields near Lost Hills is for extractive industries, not residential areas, and does not represent population centers.

Common causes of well blowouts

Well blowouts occur both during work on a well and during well operation. Typical well work includes drilling,

Fig. 2 Cities and towns in western Kern County, and all District 4 oil fields with steam injection-well density for each field (adapted from Kern Council of Governments [undated](#) and California Division of Oil, Gas and Geothermal Resources [2002](#))

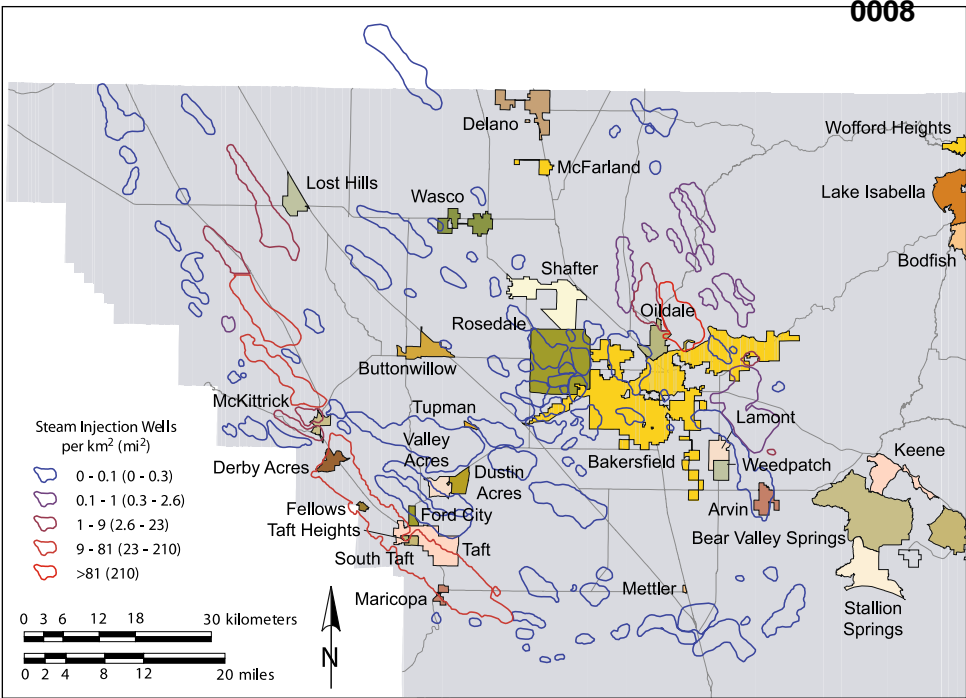


Table 1 Summary of California and District 4 statistics on oil production and steam injection, and total number of producing and steam-injection wells

	California	District 4	District 4 as % of California
Oil production [m^3 (bbl) in millions]	654 (4,116)	493 (3,101)	75
Thermally enhanced oil production [m^3 (bbl) in millions]	328 (2,061)	296 (1,858)	90
Portion of oil production due to thermally enhanced recovery (%)	50	60	–
Total steam injected [liquid equivalent, m^3 (bbl) in millions]	1,279 (8,044)	1,109 (6,973)	87
Water production [m^3 (bbl) in millions]	5,079 (31,947)	2,859 (17,984)	56
Oil production wells	46,015	35,186	76
Steam-flood injection wells	4,561	4,053	89
Cyclic-steam wells	9,408	9,013	96

Fluid volumes are 1991–2005 totals and well totals are 1991–2005 annual averages (DOGGR [1992–2006](#))

completion, servicing, reworking (also called work over), and plugging and abandoning. Well completion operations typically consist of lowering casing into the well, cementing the annulus, and perforating the casing to provide a connection to the reservoir. Well servicing includes a range of activities, such as the replacement of production tubing and downhole equipment (pumps and rods, for instance), collection of wireline logs, perforating casing and squeeze cementing prior perforations. Rework (work over) operations include activities such as cleaning out sand, repairing liners and/or casing, and deepening a well. Plugging and abandoning operations include removing casing and plugging wells at various depths with cement (Occupational Safety and Health Administration [2007](#)).

Blowouts during these operations usually occur due to (1) failure to maintain a sufficiently dense drilling fluid to

control downhole pressures, (2) failure to keep the boring full of drilling fluid, and (3) swabbing in formation fluids (Hauser and Guerard [1993](#)). Swabbing refers to creation of a low-pressure zone resulting from too-rapid vertical movement of tight fitting tools or well components. This low-pressure zone can cause relatively lower density formation fluids to enter the well bore, which lowers the hydrostatic pressure in the bore. This, in turn, can cause more formation fluid to enter. This positive feedback loop can rapidly unload the drilling fluid from a bore and cause a blowout if the surface blowout-prevention equipment fails (Schlumberger [2007](#)).

Blowouts also occur from wells on production or injection or wells that are shut-in/idle or abandoned. These blowouts typically occur due to failure of some well component, either as a result of aging, such as well-casing

Fig. 3 Thermal oil production in California Oil and Gas District 4 between 1991 and 2005 compared to District 4, California, and United States total oil production (California Division of Oil, Gas and Geothermal Resources 1992–2006; Energy Information Administration 2007)

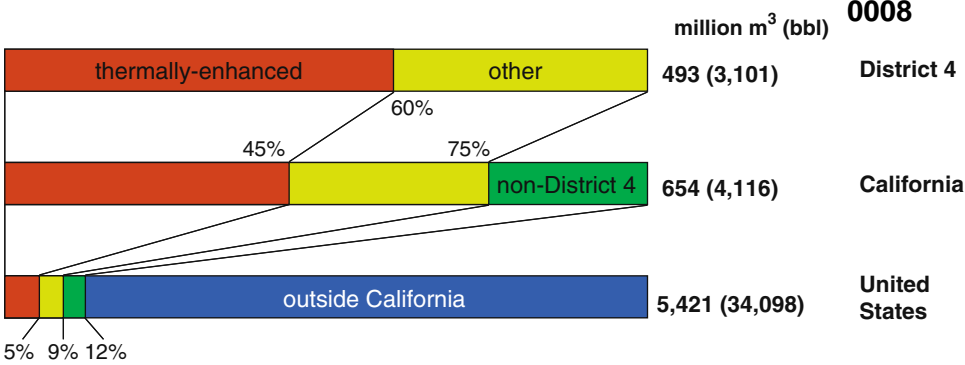
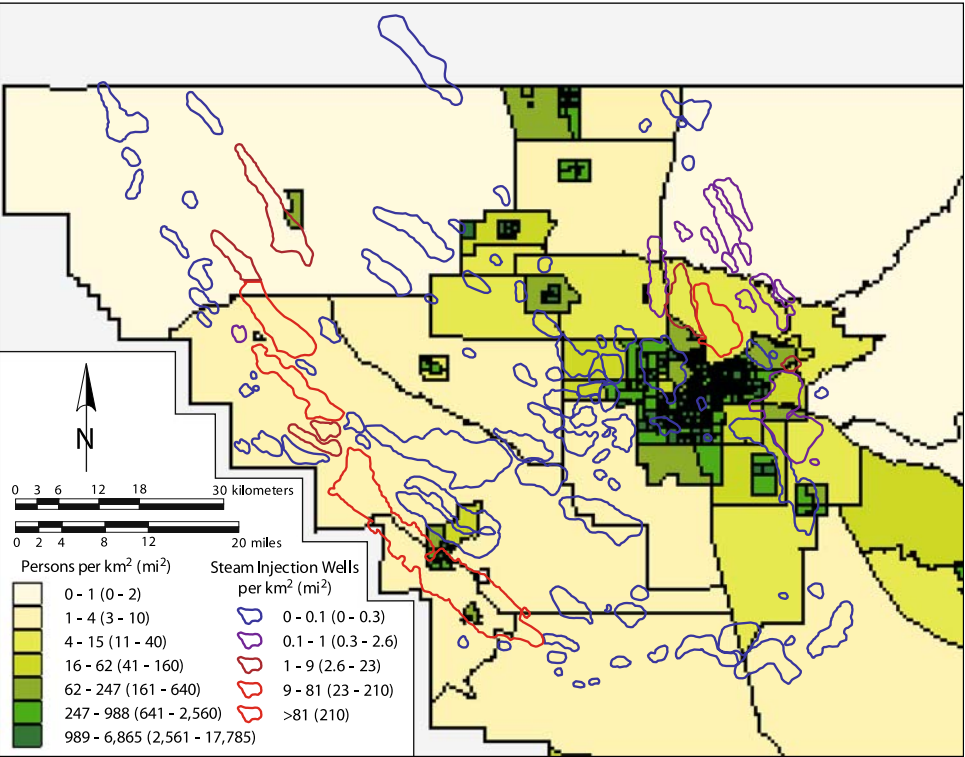


Fig. 4 District 4 oil fields and western Kern County population density by block group in 2000 (United States Census Bureau 2007)



corrosion, or mis-installation, such as an improperly plugged well. Blowouts also occur because of surface activities marginally or completely unrelated to the well, such as construction accidents that damage a well head.

Data and analysis

Well blowout data used for this study

Four sources of blowout data were used for this study. DOGGR tracks surface well blowouts as a part of its mandate “to prevent, as far as possible, damage to life, health, property and natural resources” during “the drilling, operation, maintenance, and abandonment of wells (California PRC Section 3106).” In response to this mandate, DOGGR generates three sources of data concerning

blowouts. DOGGR staff generates a paper report using a standard form for each blowout. These data are typically entered into an electronic database. DOGGR provided both copies of the paper records and the database for California Oil and Gas District 4 from 1991 to 2005. Additionally, DOGGR’s “Annual report of the oil and gas supervisor” describes blowouts in District 4 for most of the study years (California Division of Oil, Gas and Geothermal Resources 1992–2006). In addition to data from DOGGR, staff at the *Bakersfield Californian* located all newspaper articles concerning blowouts during the study period. Newspaper staff can access both a digitally searchable archive covering the period from 1996 to the present, and a paper archive prior to this date.

Table 2 lists how many blowouts are reported, and reported uniquely (meaning only), by each of the four data sources. Thirty-two blowouts were (uniquely) reported by

Fig. 5 Land use in western Kern County in 1998
(California Department of
Water Resources [undated](#))

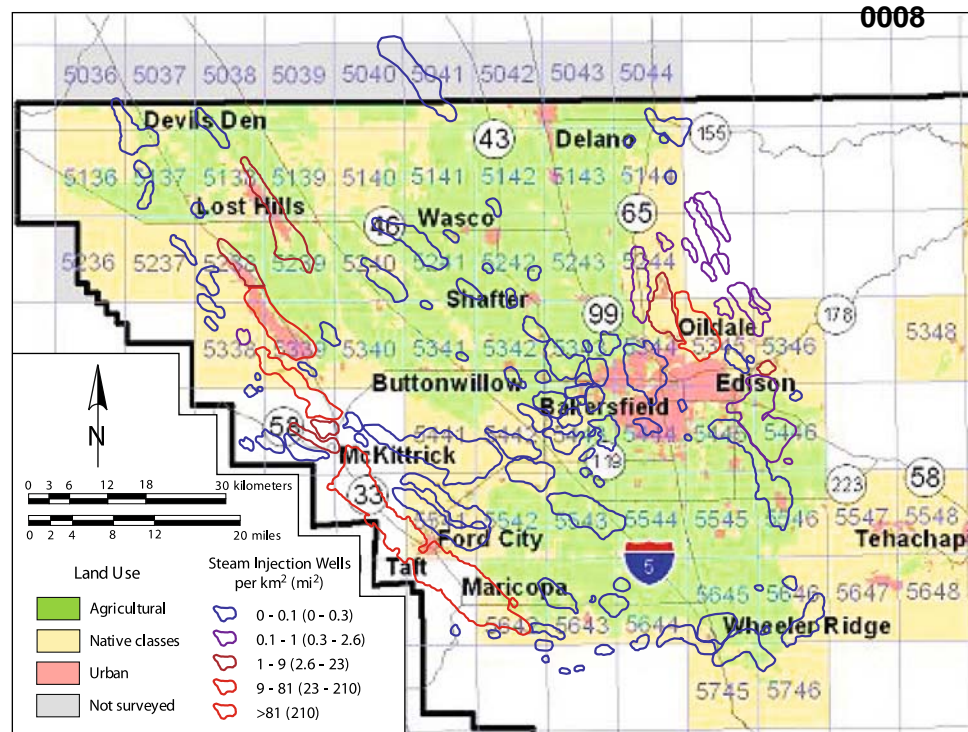


Table 2 Blowout count by data source

	Blowouts listed	Unique blowouts	Duplicated blowouts
DOGGR paper records	66	4	62
DOGGR database	65	9	56
DOGGR (1992–2006)	68	18	50
Bakersfield Californian	7	1	6
Total	NA	32	NA

only one source, 70 blowouts were reported by more than one source, and thus a total of 102 individual blowouts were identified. Thirty-two blowouts referred to simply as “steam blowouts” in the annual reports, with no further details, were assumed to correlate with steam blowouts in the other data sources.

The database and paper blowout records typically included the date, the activity taking place when the blowout occurred, and the cause of the blowout. These sources also provided data on the type, volume and duration of fluids escaping from the boring or well, and any injuries, equipment damage, or environmental damage that occurred. They also note if public impact, such as a road closure, resulted from the blowout. The newspaper articles tended to provide the most detail concerning public impacts, and also added detail concerning environmental damage.

Blowouts during the study period

The frequency of blowouts during the study period is shown in Fig. 6. A significant decline occurred during the study period. This decline is not explained by a decrease in activity in the district. Well drilling, as well as plugging and abandoning operations, generally increased in number during the study period, as did the number of active production and injection wells, while rework operations alone decreased. The quantity of fluid transferred through wells in the district did generally decrease, but only by approximately 15%, so this alone could account for only a small portion of the decreasing number of blowouts annually. The average fluid transferred per well declined by approximately 30%, but this could only account for a decline in blowouts from operating wells, and such blowouts are only about a third of all blowouts. A more likely explanation for the decline is increasing experience, improved technology, and/or changes in the safety culture in the oil and gas industry. For the purpose of this paper, the average blowout rates from the entire study period are calculated and evaluated. The blowout rate in the last 5 years of the study period is considerably lower than the average over the entire 15-year study period.

The blowouts ranged in duration from 4–5 s to 6 months. Injury and environmental damage information was available for 76 and 75 blowouts, respectively. Environmental damage information was found in the “environmental damage” field as well as in the “cause”

Fig. 6 Blowouts per year in California District 4 from 1991 to 2005

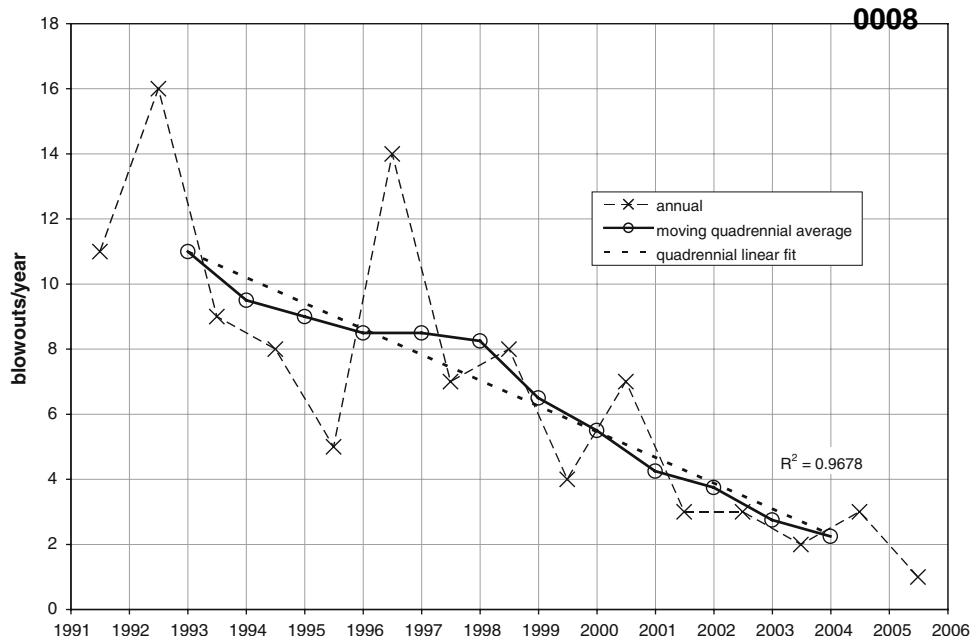


Table 3 Blowout duration, fluid type and fluid volume records and availability

	Available	Percentage of all blowouts	Median	Fifth percentile	Ninety-fifth percentile
Duration	70	69	6 h	15 min	3.5 days
Fluid type	83	81	—	—	—
Fluid volume	42	41	—	—	—

and “remarks” fields in the database and paper records provided by DOGGR.

No blowouts resulted in injuries or fatalities among the public. One blowout resulted in a worker fatality, and eight blowouts resulted in worker injuries during well drilling, reworking, servicing, and plugging and abandoning. Injuries included burns, abrasions, sprains, and bruises. The fatalities and injuries all occurred in the early to mid-1990s, with one exception in 1998. This supports the conjecture that the decreasing blowout rate during the study period results from an increasing experience, technological improvements, and/or changes in safety culture in the oil and gas industry.

Of the 75 blowouts with environmental damage information, 21 resulted in environmental damage. This damage ranged from minor oil spills limited to a drilling pad to salting of tens of hectares (tens of acres) of agricultural land with brine. Public impact was not specifically tracked by DOGGR, but was noted in relation to some blowouts. The *Bakersfield Californian* articles also described the public impact associated with some blowouts. From this

information, five blowouts were determined to have public impact, defined as affecting people’s property, including structures and animals, or behavior. This impact ranged from temporary road closures, to evacuation of a school, to complete loss of a single-family, detached home under construction.

The number and percent of blowouts for which duration, fluid type, and fluid composition are available are shown in Table 3, along with some duration statistics.

The occurrence and amount of different fluid types and volumes during blowouts are given in Table 4. Steam volumes were not available. Gas volumes are in standard cubic feet, as opposed to estimated in-reservoir volumes elsewhere in this study.

The blowouts were coded for four parameters to allow analysis of rates during different phases of oil-field development and operation. The parameters are activity, reservoir conditions, well type, and blowout location at the time of the blowout. The possible codes for each of these parameters are shown in Table 5. All four parameters were coded for 82 of the blowouts, which is 80% of the data set. The remaining 20 blowouts were partially coded. Of these, 18 were in thermal-recovery areas. The remaining two could not be coded for recovery, but were coded for activity. The proportions of coded blowout types were used to normalize the total set of 102 blowouts. In other words, these proportions were used to assign the 20 partially coded blowouts (or portions thereof) to specific blowout categories.

The activity and blowout location were coded based upon the blowout data provided by DOGGR and the *Bakersfield Californian*. The well type was coded based upon

Table 4 Blowout fluid types and volumes**0008**

	Blowouts	Percentage of all blowouts with fluid type available	Fluid volume emitted available	Percentage of blowouts emitting this fluid with volume available	Volume		
					Median	Fifth percentile	Ninety-fifth percentile
Steam	55	66	0	0	NA	NA	NA
Oil (m ³ , bbl)	39	47	26	68	2.4 (15)	0.05 (0.33)	80 (500)
Water (m ³ , bbl)	34	41	20	59	14 (88)	0.3 (2)	37,000 (230,000)
Gas (Mm ³ , MMcf)	22	27	9	41	62 (2.2)	0.006 (0.0002)	94,000 (3,300)
Earth (m ³ , ft ³)	16	19	6	38	2.3 (81)	0.035 (1.3)	740 (26,000)

Table 5 Blowout parameters and parameter codes

Parameter	Parameter value (code)	Note
Activity at time of blowout	(d)rilling	–
	(r)eworking	–
	(s)ervicing	–
	(a)bandoning	–
	(n)one	Well in operation, shut in, or abandoned
	(o)ther	Blowout due to non-well related event, such as a car crash
Recovery type	(t)hermal	Involved in thermally enhanced recovery
	(o)ther	Not involved in thermally enhanced recovery
Well type	(p)roduction	Includes exploratory wells
	(i)njection	Cyclic-steam wells coded as “ip”
	(s)hut in	–
	(a)bandoned	–
	(o)bservation	–
Blowout location	(w)ell	Blowout from wellhead, associated piping, casing or annulus
	(g)round surface	Blowout from ground surface at any distance away from well

the well type and status listed in DOGGR’s production and injection data files (California Division of Oil, Gas and Geothermal Resources 2007) using the API well number as available, along with the blowout record. The reservoir condition was assumed “thermal” for steam-injection wells, and was assigned as “thermal” for other wells with a mention of steam in the blowout record. (The blowout data and coding are presented in Appendix 1 of “Supplementary material” and additional notes on the coding are included in Appendix 2 of “Supplementary material”.)

Both steam flood and cyclic steaming took place in District 4 during the study period. Cyclic-steam wells are coded “ip” for well type because they are both injectors and producers. Recovery type “(o)ther” in District 4 includes fields on primary production, production with gas pressure maintenance, and secondary production using water and air (“fire”) floods.

Blowout rates and consequences during well drilling, rework, and plugging and abandonment

During well drilling, reworking, and plugging and abandoning (P&A), a total of 32 coded blowouts occurred in District 4 during the study period. Over 78,000 of these well-work operations were performed during this same time period (California Division of Oil, Gas and Geothermal Resources 1992–2006). Blowout rates were calculated by dividing the number of blowouts during a certain type of operation by the number of these operations during the study period. For instance, the drilling blowout rate is the number of blowouts during drilling, divided by the total number of borings drilled during the study period. More detail concerning these calculations is included in Appendix 2. The calculated blowout rates during drilling, reworking, and plugging and abandoning are provided in Fig. 7 and Table 6.

Fig. 7 Blowout rates and consequences during well drilling, reworking, and plugging and abandoning in District 4 from 1991 to 2005. Areas of overlapping cross hatch and stipple indicate the rate of blowouts causing both injury and environmental damage

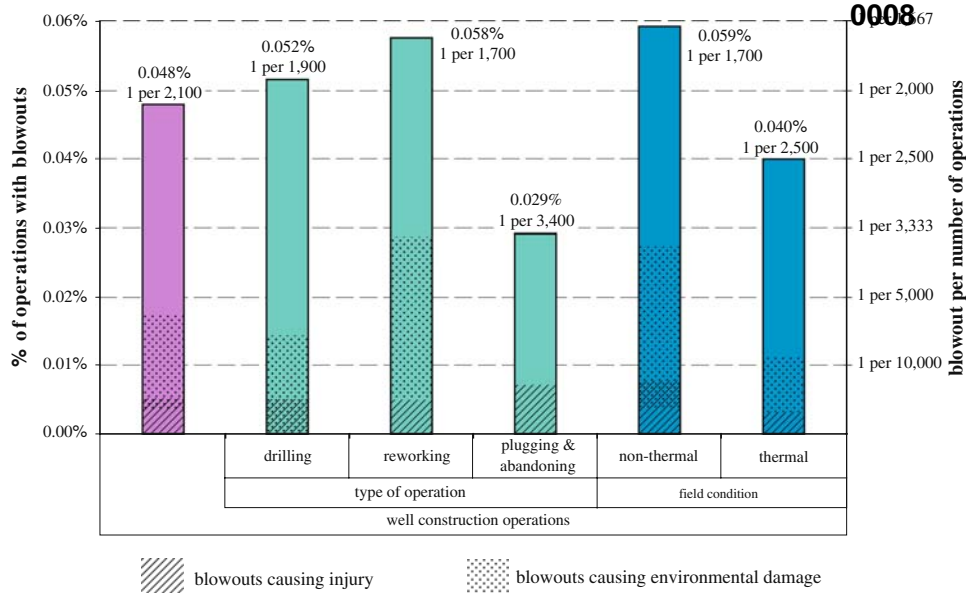


Table 6 Well blowout rates in District 4 during well construction in the period 1991–2005

	All	By type of construction operation			By field type	
		Drilling	Reworking	Plugging and abandoning	Non-thermal	Thermal
Coded blowouts	32	13	14	5	19	12
Normalized # of blowouts	37.5	15.2	16.4	5.9	19.6	17.9
Number of operations (1991–2005 total)	78,100	29,516	28,500	20,097	33,000	45,000
Construction operation description	Wells drilled, reworked (estimated) and P&A	Wells drilled	95% of the well reworking permits	Wells plugged and abandoned	Estimated wells drilled, reworked and P&A in non-thermal areas	Estimated wells drilled, reworked and P&A in thermal areas
Operations with blowouts (%)	0.048	0.052	0.058	0.029	0.059	0.040
Blowout per number of operations	1 per 2,100	1 per 1,900	1 per 1,700	1 per 3,400	1 per 1,700	1 per 2,500
Portion causing injury	10% (3/27)	10% (1/11)	10% (1/12)	25% (1/4)	15% (2/15)	10% (1/11)
Portion causing environmental damage	30% (8/27)	25% (3/11)	40% (5/12)	0% (0/4)	40% (6/15)	20% (2/11)

Three of the blowouts during well work had public impact, one during each type of well work. All three of these blowouts were in non-thermal fields. This impact included an electrical outage at a farm, closure of a road, and evacuation of 24 people from 10 homes. As only the occurrence, rather than the lack of occurrence, of public impact was available, the portion of blowouts resulting in public impact is not given in the tables in this paper. However, the inclusion of newspaper data suggests there was not likely significantly more or greater public impact than included in this paper's data set.

The worker injury and environmental damage consequences were available for 27 of the 32 blowouts coded for

drilling, reworking, and plugging and abandoning. The portion of blowouts with each of these consequence types during these activities is shown in Fig. 7 and Table 6.

The worker injuries varied in severity. A worker fatality occurred, and two workers were burned, during preparation for plugging and abandoning a single well in a non-thermal field. A worker suffered a minor concussion resulting from a fall during a drilling blowout in a non-thermal field. A worker's foot was burned during preparation for reworking in a thermal field.

One blowout during reworking in a non-thermal field in Rosedale misted seven single-family homes and associated

grounds, as well as equipment and domestic animals (including horses and dogs). One of the misted homes was under construction and had been framed and sheathed. The structure had to be torn down as a result of the oil misting and framing restarted, resulting in several lawsuits. Another blowout during plugging and abandoning in a non-thermal field resulted in a highway closure.

Environmental damage from the blowouts ranged from “minor” oil misting to oil misting with 18 m^3 (150 bbl) of oil over approximately 30 ha (70 acres). Damage during drilling and reworking was similar, but damage from non-thermal blowouts tended to cover 10 ha (25 acres) or more, while the damage area from thermal blowouts was smaller, although the data were too few to show this statistically.

The median blowout duration was 6 h, with drilling blowouts having durations of 8 h, reworking blowouts 6 h, and plugging and abandoning blowouts 12 h. The median non-thermal and thermal field blowout durations were 18 and 6 h, respectively. These differences were not significant at the 5% level, however. The shortest and longest blowouts were 20 min and 6 months, respectively, with the latter during drilling of an exploratory gas well.

Blowout rates and consequences during well operations

During well production and injection operations, a total of 48 coded blowouts occurred from operating wells in District 4 during the study period. Two approaches were used to assess these blowout rates. In the first approach, the number of blowouts from a certain well type was divided by the annual average number of wells of this type, and by the study period duration in years. For instance, the production blowout rate is blowouts during production, divided by the annual average number of production wells, divided by 15 years. This yields the blowout rate in blowouts per well per year (sometimes referred to as blowouts per well year). The number of wells used for this analysis was obtained from California Division of Oil, Gas and Geothermal Resources (1992–2006). The assignment of wells to thermal versus non-thermal fields, as well as steam flood versus cyclic steaming, is discussed in Appendix 2.

In the second approach, rates were calculated based on the fluid volume transferred. For instance, the blowout rate for steam-injection wells was blowouts divided by the volume of steam injected during the study period. The fluid volume production and injection data used for this analysis were obtained from California Division of Oil, Gas and Geothermal Resources (1992–2006). Pressure data used to determine steam/water densities, necessary for calculating steam-injection volumes, were obtained from the DOGGR’s production and injection data files (California Division of Oil, Gas and Geothermal Resources 2007).

During the study period, approximately 490 ~~2008~~ m^3 (3.1 billion bbl) of oil, 67 billion standard m^3 (2.4 trillion standard ft^3) of gas and 2.9 billion m^3 (18 billion bbl) of water were produced. Other approximate injection volumes were 19 billion m^3 (670 billion standard ft^3) of gas for pressure maintenance, 1.1 billion m^3 (7.0 billion bbl) of steam (liquid equivalent), 430 million m^3 (2.7 billion bbl) of water for flooding, and 760 million m^3 (4.8 billion bbl) of disposal water. The conversion of the liquid equivalent steam volume to the actual steam/water volume passing through the wells is discussed below. The conversion of the standard gas volume to actual well flow volume, and the distribution of the fluid volumes to thermal versus non-thermal fields and steam flood versus cyclic steaming, are discussed in Appendix 2.

For the rate of blowouts per-fluid volume in thermal fields, the liquid equivalent of steam injected as reported in the California Division of Oil, Gas and Geothermal Resources (1992–2006) was converted to the approximate steam/water volume. The steam fraction on a mass basis at the injection well head was assumed to be 0.70, with the remainder liquid water (Mike Stettner and Alfredo Urdaneta, personal communication). The average steam-injection pressure at the well head was taken as 3 MPa (440 psi) based upon California Division of Oil, Gas and Geothermal Resources (2007). The vapor-to-liquid volume ratio for equivalent masses at this pressure is approximately 67. The steam volume resulting from these values (the “at well head” volume) was used in all the steam-injection well blowout rates.

The mass fraction of water produced as steam was assumed to be 0.05 of the total water produced, which is in agreement with production company estimates (Alfredo Urdaneta, personal communication). The average thermal-production-well pressure at the well head was taken as 1 MPa (145 psi) absolute based upon California Division of Oil, Gas and Geothermal Resources (2007). At this pressure, the vapor-to-liquid volume ratio for equivalent water masses is approximately 200.

Application of the values above gives steam/water volumes of 52 billion m^3 (330 billion bbl) injected at the well head, and 21 billion m^3 (130 billion bbl) produced at the well head in thermal-recovery areas. These volumes are approximately 69 and 28 times greater than the volume of the other fluids (primarily oil and disposal water) transferred between the surface and subsurface in thermal fields, respectively.

The blowout rates during well servicing, and production and injection operations, are shown in Figs. 8 and 9 and Tables 7 and 8. The well servicing blowout rate uses the annual average well count or total fluid volume, rather than service operations. This is because DOGGR does not track the number of service operations. Therefore, the servicing

Fig. 8 Well blowouts per well per year for operating wells in District 4 from 1991 to 2005

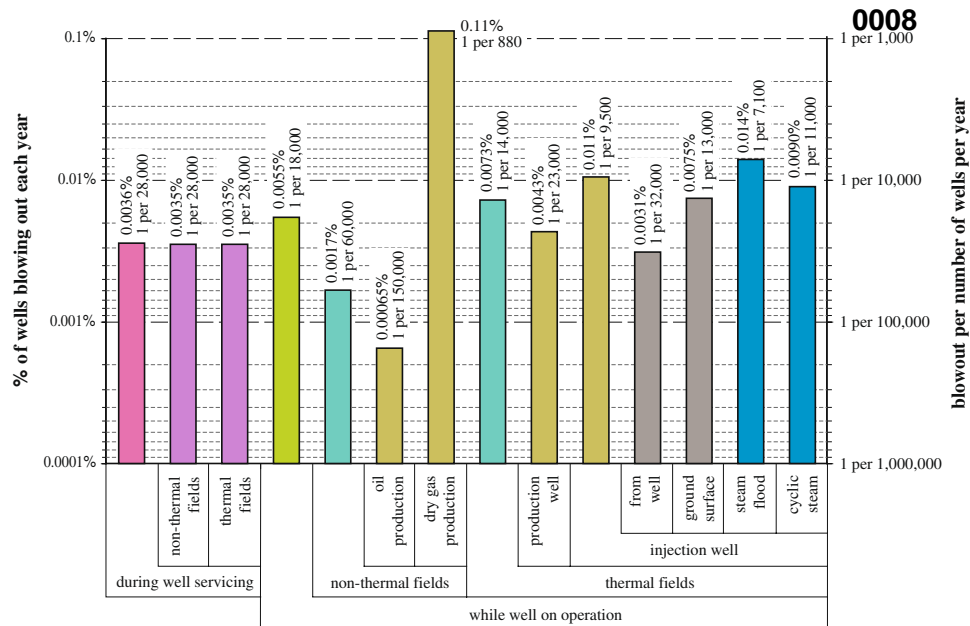
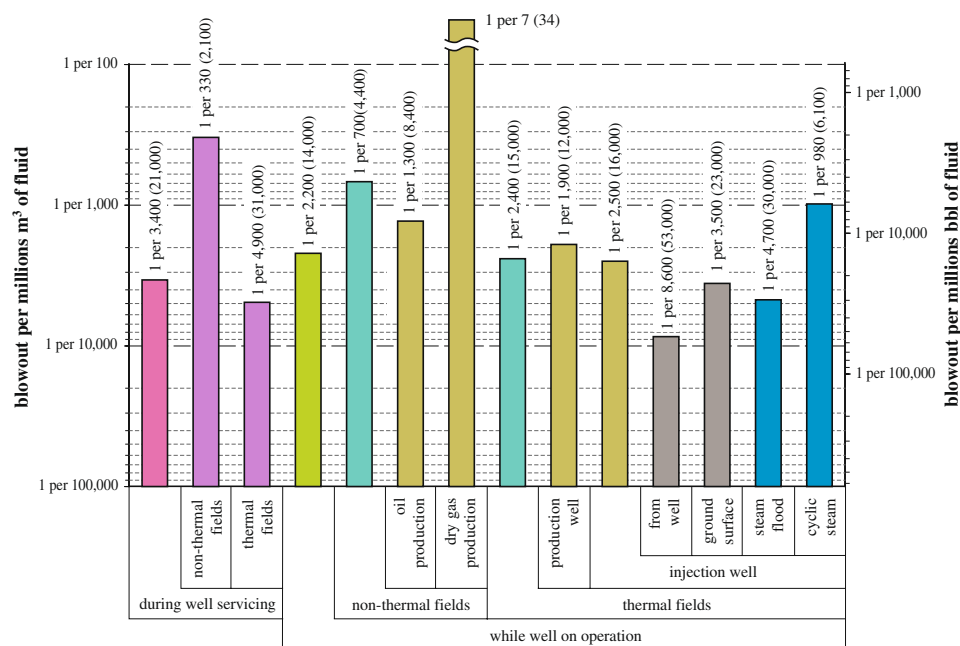


Fig. 9 Well blowouts per fluid-volume transferred during production and injection in District 4 from 1991 to 2005



blowout rate is in different units and should not be compared with the drilling, reworking, and plugging and abandoning rates. The blowout rate during well servicing combines the probability that a well will be serviced with the probability that it will experience a blowout during servicing. For instance, if 10% of the wells were serviced in a year, then the blowout rate per well servicing operation would be ten times that of the per well per year rate given in Figs. 8 and 9 and Table 7.

Almost all operational wells are serviced each year in thermal fields, while a considerably lower fraction is serviced each year in non-thermal fields (Alfredo Urdaneta,

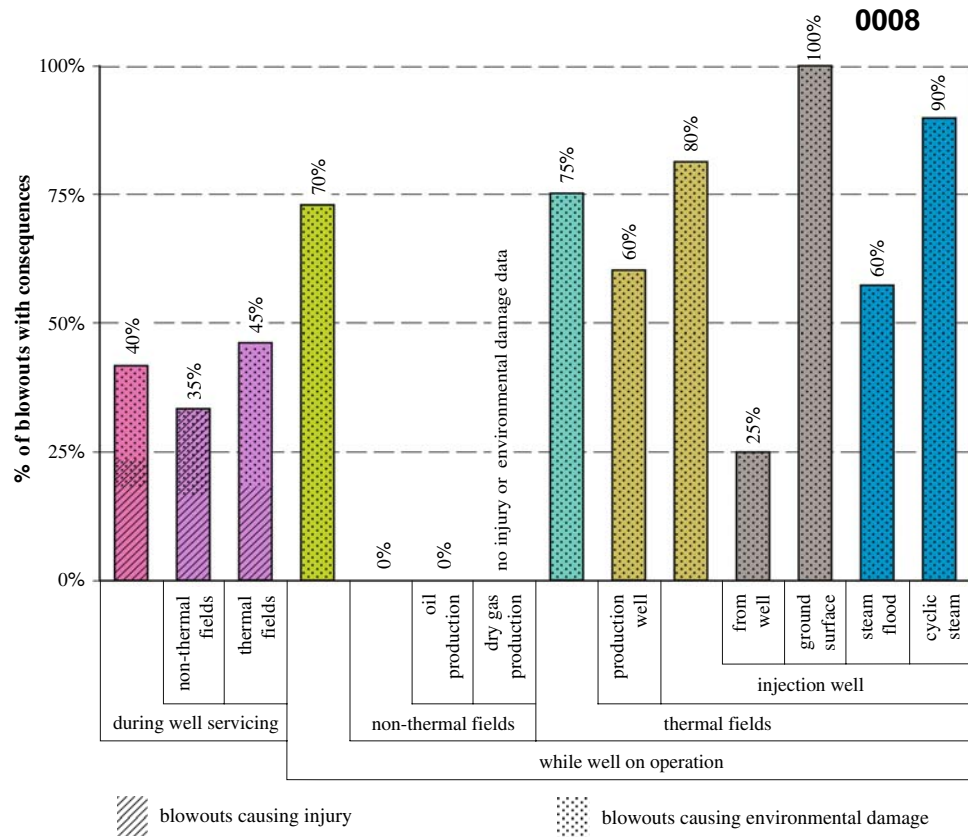
personal communication). Therefore even though the blowout rate during well servicing is almost the same in thermal versus non-thermal fields on a per well per year basis (as shown in Fig. 8 and Table 7), the rate on a per-servicing operation basis is actually considerably higher in non-thermal as compared to thermal fields.

About a quarter of the blowouts during well servicing resulted in worker injury, and about a quarter resulted in environmental damage, as shown in Table 7. The injuries consisted of abrasions, bruises, sprains, and burns, with no noteworthy difference between non-thermal and thermal fields. The environmental damage consisted of various

Table 7 Rate of well blowouts and consequences during well servicing and operation in District 4 from 1991 to 2005

	During well servicing			While well in operation				
	All	In non-thermal fields	In thermal fields	All	In non-thermal fields			
					All	Oil production	Dry gas production	
Coded blowouts	19	6	12	29	3	1	2	
Normalized # of blowouts	22.3	7.4	14.9	34.0	3.5	1.2	2.3	
Number of wells (annual average)	41,318	14,000	28,000	41,318	14,000	12,000	138	
Well description	Production and injection	Non-steam injection and estimated production	Steam injection and estimated production	Production and injection	Non-steam injection and estimated production	Estimated non-thermal oil production	Non-associated gas production	
Well per year blowing out (%)	0.0036	0.0035	0.0035	0.0055	0.0017	0.00065	0.11	
Blowout per number of wells per year	1 per 28,000	1 per 28,000	1 per 28,000	1 per 18,000	1 per 60,000	1 per 150,000	1 per 880	
Fluid volume [total; million m ³ (bbl)]	75,800 (477,000)	2,430 (15,300)	73,400 (462,000)	75,800 (477,000)	2,430 (15,300)	1,560 (9,840)	16 (99)	
Fluid volume description	Produced oil and gas, produced/injected water/steam (at well head), and injected gas	Non-thermally produced oil, gas and water, and injected gas and water (flood and disposal)	Thermally produced oil, produced/injected water/steam (at well head), and injected disposal water	Produced oil and gas, produced/injected water/steam (at well head), and injected gas	Non-thermally produced oil, gas and water, and injected gas and water (flood and disposal)	Non-thermally produced oil, produced oil, water, and associated gas (at well head)	Non-associated gas (at well head)	
Blowouts per fluid volume [million m ³ (bbl)]	1 per 3,400 (21,000)	1 per 330 (2,100)	1 per 4,900 (31,000)	1 per 2,200 (14,000)	1 per 690 (4,400)	1 per 1,300 (8,400)	1 per 7 (42)	
Portion causing injury	25% (4/17)	35% (2/6)	20% (2/11)	0% (0/23)	0% (0/1)	0% (0/1)	No data	
Portion causing environmental damage	25% (4/17)	15% (1/6)	30% (3/11)	70% (16/22)	0% (0/1)	0% (0/1)	No data	

Fig. 10 Percentage of blowouts causing worker injury and environmental damage. Overlapping patterns indicate blowouts resulting in both types of consequences



concentrations of oil covering a fifth of a hectare (a half acre) to oil covering 16 ha (41 acres), again with no notable difference between non-thermal and thermal fields. There was no public impact. The median duration of blowouts during servicing was 8 h. The median duration in thermal and non-thermal fields was 1 and 10 h, respectively.

Blowouts from wells in operation caused no injuries or fatalities. The single blowout from a well in operation in a non-thermal field did not cause any environmental damage, either. The only public impact was evacuation of a school and closure of a highway during a thermal production well blowout. Three-fifths of the thermal-production-well blowouts caused environmental damage, as shown in Fig. 10 and Table 8. This damage consisted of a couple of hectares (several acres) of lightly oil-misted ground to approximately 15 ha (40 acres) of oil-misted ground. The median thermal production blowout duration was 6 h.

All blowouts from the ground surface, rather than at the well, were associated with steam-injection wells. Therefore the ground-surface blowout rate is based only on the number of steam injectors and the injected steam volume. No impact was noted in the “environmental damage” field in the DOGGR database for these blowouts. However, the “cause” and “remarks” fields indicate such blowouts occurred from 6 to 200 m (20 ft to 200 yards) from the nearest well and caused displacement of earth from the

blowout fracture. The amount of earth displaced ranged from a 30 cm (1 ft) tall cone to a mound 2 m (6 ft) high by 3 m (10 ft) in diameter. On this basis, all ground-surface blowouts are conservatively taken in this report as causing environmental damage, owing to the potential disruption of the surrounding property. About a fourth of steam-injection-well blowouts from the ground surface also involved flows or sprays of oil, but the spread of this oil appears to have been small.

Note that some of the well blowouts listed in the data sources as coming from the ground surface rather than at the well may not have been caused by well-casing failures in the subsurface, but rather by leakage along geological pathways (Mark Gamache, personal communication). These can be difficult to discriminate, and no attempt to do so has been made in this paper. All ground-surface blowouts listed in the data sources used were treated as well blowouts; consequently, the actual steam-injection-well blowout rates may be lower than calculated.

No blowouts occurred from injection wells other than steam wells. These wells include, in decreasing numbers, wells for water flood and disposal, pressure maintenance (natural gas injection) and air injection (fire flood). Taking the cumulative number of well years for these injectors as a group, they blow out at a rate equal to or less than approximately 1 per 29,000 wells per year. This rate is approximately a third of that for steam injectors.

Table 8 Rate of well blowouts and consequences from wells in operation in thermal-recovery fields in District 4 from 1991 to 2005

	Steam-flood production		Steam injection				Steam flood	Cyclic steam
	All		All	From well	From ground			
Coded blowouts	26	8	17	5	12	7	10	
Normalized # of blowouts	30.5	9.8	20.7	6.1	14.6	8.5	12.2	
Number of wells (annual average)	28,000	15,000	13,066	13,066	13,066	4,053	9,013	
Well description	Steam injection and estimated production wells	Estimated steam-flood production wells	Steam-injection wells	Steam-injection wells	Steam-injection wells	Steam-flood wells	Cyclic-steam wells	
Wells per year blowing out (%)	0.0073	0.0043	0.011	0.0031	0.0075	0.014	0.0090	
Blowout per number of wells per year	1 per 14,000	1 per 23,000	1 per 9,500	1 per 32,000	1 per 13,000	1 per 7,100	1 per 11,000	
Fluid volume [total; million m ³ (bbl)]	73,400 (462,000)	18,100 (114,000)	52,500 (330,000)	52,500 (330,000)	52,500 (330,000)	40,500 (255,000)	11,900 (74,800)	
Fluid volume description	Thermally produced oil, produced/ injected water/ steam (at well head), and injected disposal water	Steam flood-produced oil/water/steam (at well head)	Steam injected and cyclically produced oil/water/steam (at well head)	Steam injected and cyclically produced oil/water/steam (at well head)	Steam injected and cyclically produced oil/water/steam (at well head)	Steam injected during flooding (at well head)	Cyclically injected steam and produced oil/water/ steam (at well head)	
Blowouts per fluid volume [million m ³ (bbl)]	1 per 2,400 (15,000)	1 per 1,900 (12,000)	1 per 2,500 (16,000)	1 per 8,600 (54,000)	1 per 3,600 (23,000)	1 per 4,700 (30,000)	1 per 980 (6,100)	
Portion causing injury	0% (0/22)	0% (0/5)	0% (0/17)	0% (0/5)	0% (0/12)	0% (0/7)	0% (0/10)	
Portion causing environmental damage	75% (16/21)	60% (3/5)	80% (13/16)	25% (1/4)	100% (12/12)	60% (4/7)	90% (8/9)	

Table 9 Rate of well blowouts and consequences from non-operational wells (shut-in/idle vs. abandoned) in District 4 from 1991 to 2005

	All	Shut-in/idle			Abandoned		
		All	In non-thermal fields	In thermal fields		In non-thermal fields	In thermal fields
Coded blowouts	5	2	1	1	3	0	3
Normalized # of blowouts	5.9	2.3	1.2	1.2	3.5	<1	3.5
Number of wells (annual average)	53,742	18,660	8,400	10,000	35,081	12,000	23,000
Well description	Idle/shut-in and P&A wells	Idle/shut-in wells	Estimated shut-in/idle wells in non-thermal areas	Estimated shut-in/idle wells in thermal areas	P&A wells	Estimated P&A wells in non-thermal areas	Estimated P&A wells in thermal areas
Wells per year blowing out (%)	0.00073	0.00084	0.00093	0.00078	0.00067	<0.00056	0.0010
Blowout per number of wells per year	1 per 140,000	1 per 120,000	1 per 110,000	1 per 130,000	1 per 150,000	<1 per 180,000	1 per 98,000
Portion causing injury	0% (0/4)	0% (0/1)	No data	0% (0/1)	0% (0/3)	No data	0% (0/3)
Portion causing environmental damage	25% (1/4)	0% (0/1)	No data	0% (0/1)	35% (1/3)	No data	35% (1/3)

Table 10 Rate of well blowouts and consequences from non-operational wells in non-thermal vs. thermal fields and during other events in District 4 from 1991 to 2005

	Not operational			During other events
	All	In non-thermal fields	In thermal fields	
Coded blowouts	5	2	3	2
Normalized # of blowouts	5.9	2.3	3.5	2.3
Number of wells (annual average)	53,742	21,000	33,000	59,978
Well description	Idle/shut-in and P&A wells	Estimated shut-in/idle and P&A wells in non-thermal areas	Estimated shut-in/idle and P&A wells in thermal areas	Production, injection and shut-in wells
Wells per year blowing out (%)	0.00073	0.00037	0.00095	0.00026
Blowout per number of wells per year	1 per 140,000	1 per 270,000	1 per 110,000	1 per 380,000
Portion causing injury	0% (0/4)	No data	0% (0/4)	0% (0/2)
Portion causing environmental damage	25% (1/4)	No data	25% (1/4)	0% (0/2)

Approximately 1.2 billion m³ (7.8 billion bbl) of fluid were injected through these other wells. This is more than the average fluid volume per cyclic-steam-injector blowout, but less than the average fluid per steam-flood-injector blowout. Therefore, the data set studied provides some constraint on the relationship between non-steam and steam-injector blowout rates per-fluid volume.

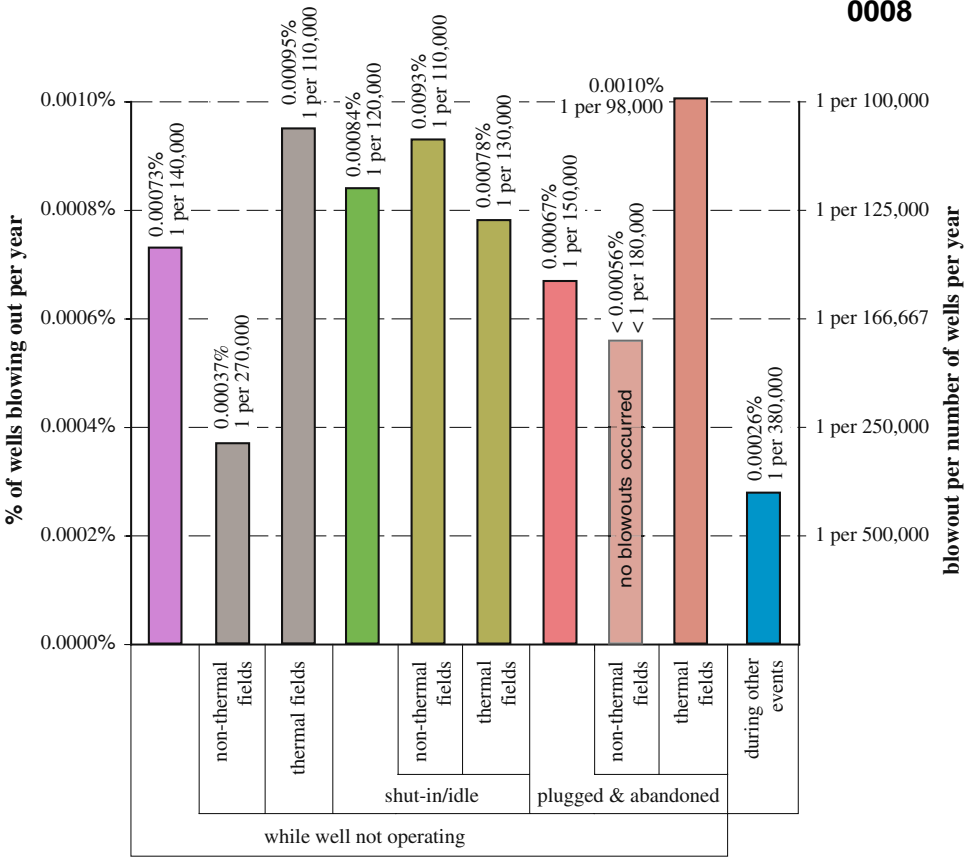
Blowout rates and consequences for shut-in/idle and abandoned wells, and during “other events”

Five blowouts occurred from shut-in/idle and abandoned wells in District 4 during the study period. Table 9 shows

the blowout rate for each of these well types, as well as the rates in non-thermal versus thermal fields for each well type. Table 10 shows the rates in non-thermal and thermal fields for the two well types combined. The rates from Tables 9 and 10 are shown in Fig. 11.

The three blowouts from abandoned wells all involved steam. Two of these wells had approved plugs. The plugging status of the third well at the time of the blowout is unknown, but it appears to have been poorly located and likely not properly plugged, since the blowout material included “wood debris.” The thermal blowouts from these abandoned wells resulted in no injuries. One resulted in environmental damage consisting of a crater at the well and

Fig. 11 Well blowouts per well per year for non-operating wells in District 4 from 1991 to 2005



displaced earth piled up to 5 m (15 ft) high and covering an area extending up to 75 m (250 ft) downwind.

The abandoned-well blowout rate was calculated on a per well per year basis for all P&A wells, and for P&A wells residing in areas with and without steam injection. The number of P&A wells residing in steam-injection areas was estimated by multiplying the total number of P&A wells reported by California Division of Oil, Gas and Geothermal Resources (1992–2006), by the portion of total oil produced incrementally. The abandoned-well blowout rate was not calculated on a fluid volume basis, because estimates of the in-reservoir fluid volume change varied widely. This is because small variations in the assumed, in-reservoir average steam mass fraction for injected steam/water mixes result in large variations of the in-reservoir fluid volume change.

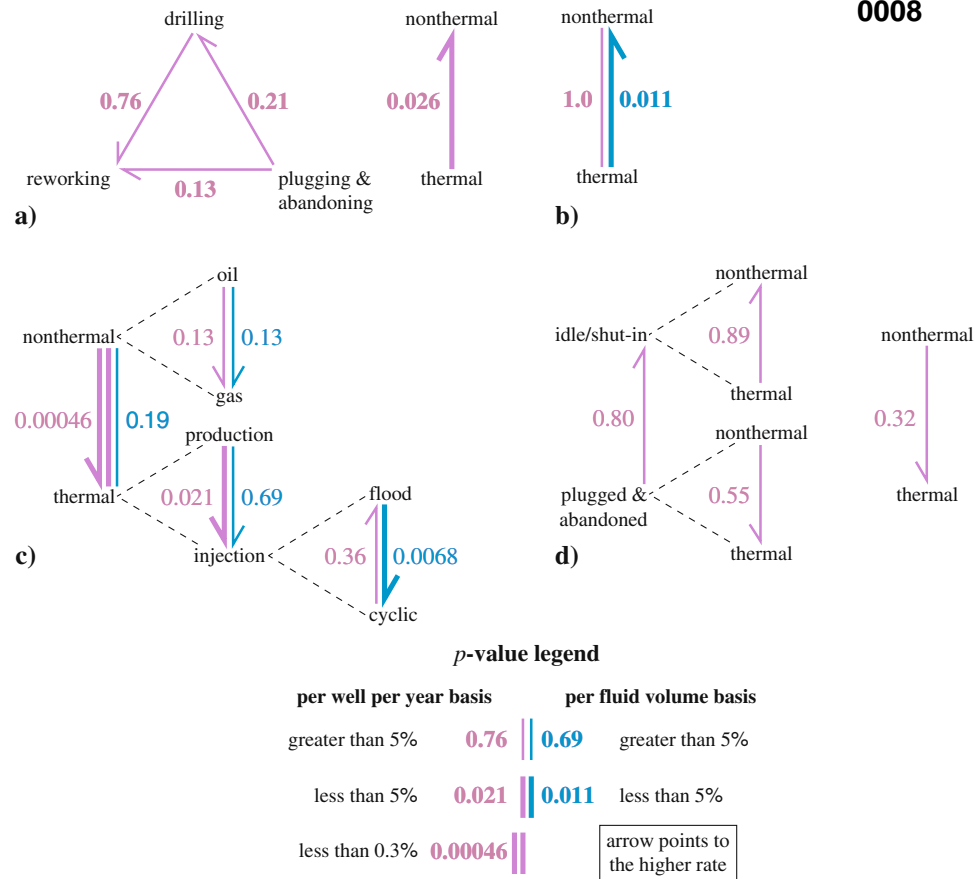
While it is unclear whether the in-reservoir fluid volumes in thermally enhanced recovery fields have increased or decreased on average across the district during the study period, steam is highly buoyant and moderately expansive. It will therefore migrate upward along available pathways whether the relative pressure, and fluid volume, in the reservoir is increasing or decreasing. Two approaches were applied, which together give end-member estimates of the area of District 4 with steam in the subsurface. The first approach assumes steam is present in the subsurface

throughout the entire field area of any field with any steam injection. This is equivalent to the assumption that steaming occurs in one of many stacked pools, and this pool covers the entire field. The second approach assumes that the portion of the field with steam is equivalent to the portion of the field production wells influenced by steam. This approach, described in more detail in Appendix 2, is equivalent to the assumption that all production in a field is from a single pool only, and steam does not extend beyond the ring of wells closest to a steam-injection well, whether cyclic or flood.

Areas of the fields with steam injection were taken from California Division of Oil, Gas and Geothermal Resources (2006). The estimated end-member steam areas are 312 and 143 km² (120 and 54 mi.²). Dividing the estimate of P&A wells in thermally enhanced recovery areas by the end-member areas gives a well density between 75 and 163 P&A wells per km² (194 and 422 per mi.²), or 0.75 and 1.6 P&A wells per hectare (3.3 and 1.5 acres per P&A well) in thermally enhanced recovery areas. This corresponds to an average P&A well spacing between 116 m (380 ft) and 78 m (256 ft) assuming a square well pattern.

“During other events” refers to two blowouts caused by events unrelated or marginally related to well operations. One of these occurred as a result of a motor vehicle

Fig. 12 *P* values for blowout rate pairings within overall categories: **a** well construction, **b** well servicing, **c** operating wells, and **d** non-operating wells. The lower the *P* value, the more likely the two blowout rates are statistically different. *P* values below 5% are taken to indicate that the two blowout rates are fundamentally different. The lower, 0.3% threshold is explained in the text



apparently hitting and damaging an idle well head. The other occurred when a production well head was damaged by a backhoe, presumably during field-related construction. Neither of these blowouts was included in any other category. The blowout rate due to these events was the lowest measurable of all the rates presented in this study on a per-well basis. This rate was not calculated on a fluid volume basis, because there is no genetic relation between fluid transferred by these wells and their likelihood of experiencing this type of blowout.

Data integrity and statistical significance

It is likely blowouts occurred during the study period that are not reflected in any of the four data sources used for this study. Nonetheless, two considerations suggest underreporting should not dramatically alter the findings of this study. First, Table 2 indicates over two-thirds of the known blowouts were recorded in more than one data source, so the number of unknown blowouts is probably significantly less than the number of known blowouts. Second, as mentioned, some of the blowouts from the ground surface away from a thermal injection well probably do not involve a well failure, and so are not technically well blowouts. Rather these blowouts occurred due to fluid migration from

the reservoir to the ground surface along geologic pathways. As a result, the known blowout set used for the thermal injection well blowout rates is probably a bit inflated, somewhat compensating for the likely underreporting in this category.

Differences between the various blowout rates were tested for statistical significance using the following test statistic

$$Z = \frac{r_1 - r_2}{\sqrt{SE_1^2 + SE_2^2}} \quad (1)$$

where r is the blowout rate and SE is the standard error of the blowout rate. SE was calculated by

$$SE = \frac{r}{\sqrt{n}} \quad (2)$$

where n is the number of (normalized) blowouts (Keyfitz 1966). *P* values were looked up on a standard table for the calculated values of Z (National Institute of Standards and Technology and SEMATECH 2008).

The *P* values for different blowout rate pairs are shown in Fig. 12. Note that the upper limit blowout rate of 1 per 180,000 blowouts per plugged and abandoned well per year in non-thermal fields was used in the comparison of blowout rates in non-thermal and thermal fields.

Two levels of significance are reflected in Fig. 12: a 5% level and a 0.3% level. The 5% level is a common threshold of significance. The latter, quite stringent, significance level results from Bonferroni's correction, which calls for dividing the desired significance level, in this case 5%, by the number of comparisons, in this case 18. Bonferroni's correction seeks to preclude spurious findings of significance due to testing a large number of comparisons. Figure 12 shows that while the blowout rates from producing dry gas (meaning not associated with oil) wells are the highest of any well group, these rates are not significantly different from producing oil wells. This is due to the small number of dry gas wells (the basis for the rate) present in the district. The producing gas well blowout risks are not further considered in this study due to this small basis.

Results and discussion

A number of conclusions can be drawn from the findings above.

No public fatalities or injuries occurred as a result of the 102 blowouts studied. No worker fatalities or injuries occurred as a result of blowouts from operational, idle/shut-in, or abandoned wells. One worker fatality and several worker injuries occurred during drilling, reworking, plugging and abandoning, and servicing operations combined. Four blowouts had an impact on the public, consisting of evacuation of and damage to a neighborhood, evacuation of a school, a power outage at one farm, and a few highway closures. Damage to the neighborhood was caused by deposition of oil dispersed as a mist.

There was, at most, only one abandoned-well blowout from a previously unknown or poorly located well. This is remarkable, given over a century of drilling and well construction in the district.

Low rates are observed from both abandoned wells and shut-in/idle wells. There is no significant difference between the rates from these wells, or between the rates in thermal versus non-thermal fields given the available data (see Fig. 12). This suggests shutting in a well is as effective as plugging it in terms of preventing blowouts.

The rate of blowouts from unknown and abandoned wells can reasonably be expected to have been higher during the early phases of thermally enhanced recovery, because these wells were first stressed by steam. Indeed, steam-injection volumes approximately tripled from the early 1970s to the mid-1980s, when they peaked. Steam-injection volumes during the study period were relatively constant and averaged about three quarters of the mid-1980s peak volume. Therefore a higher rate of blowouts from unknown and abandoned wells than observed during

the study period might be expected prior to the mid-1980s. However, Hauser and Guerard (1993) list only two abandoned-well blowouts (in the mid-1980s) involving steam in the period from 1950 to 1990, suggesting that similarly low blowout rates for these well types during the study period were not unusual.

Blowouts rates from operating wells in thermal fields are significantly higher than in non-thermal fields on a per well per year basis, even using the more stringent Bonferroni significance criteria, and blowout rates from producing wells are significantly greater than from injection wells in thermal fields on a per well per year basis (see Fig. 12). These rates are not significantly different on a fluid volume basis, however, despite the different types of fluids and fluid mixes involved (steam/water vs. water/steam/oil vs. water/oil). This suggests that fluid type and mix is not a fundamental determinant of blowout rates. Specifically, steam's oft-cited greater corrosivity and thermomechanical stress imposition appears not to actually cause significantly more blowouts per equal fluid volume transferred by the well. Rather, fluid volume, or some related parameter (such as pressure), is a fundamental determinant of blowout rates. Indeed, a sampling of well pressures from California Division of Oil, Gas and Geothermal Resources (2007) indicates that steam flood-injection wells had about three times the average well-head pressure as thermal area production wells, and they blew out about three times as often per well per year (1 per 7,100 vs. 23,000 wells per year). This finding suggests that steam-flood-injection wells blow out more frequently than other wells (on a per well basis) primarily because they operate at higher pressures, not because they transfer steam.

Well blowout rates per fluid volume are significantly higher for cyclic-steam wells than steam flood wells (see Fig. 12). This is probably primarily a result of the discontinuous fluid flow experienced by cyclic-steam wells. The discontinuous flow results in a lower fluid volume compared to the pressure imposed on these wells relative to steam flood wells.

The blowout rate per well per year for non-steam injection wells (less than 1 per 29,000) is about a fourth that for steam flood injection wells. The total fluid volume transferred by non-steam injection wells during the entire study period [1.2 billion m³ (7.8 billion bbl)] is less than one-fourth the fluid volume transferred per steam flood injection well blowout, though. These comparisons suggest that non-steam injection wells blew out less frequently than steam flood injection wells because they were generally operating at lower pressures, rather than due to fluid type or mix differences.

The drilling blowout rate of 1 per 1,900 borings in District 4 from 1991 to 2005 is virtually the same as the rate of 1 per 2,000 borings in California from 1950 to 1990

(Hauser and Guerard 1993). The blowout risk during drilling and reworking are similar (approximately 1 per 1,800 operations) while that from plugging and abandoning is lower (1 per 3,400 operations), although not significantly so. While the latter has about the same chance of causing injury, it caused no environmental damage. As a consequence, the blowout risk during plugging and abandoning appears to be lower than during drilling and reworking, although the data used in this study are insufficient to show this statistically.

Blowouts from causes unrelated to the well (such as a motor vehicle hitting a wellhead) occurred at the extremely low rate of 1 per 380,000 wells per year.

The median blowout lasted 6 h. The 95th percentile duration is 3.5 days. Around half of the blowouts emitted steam, oil and/or gas. Steam volumes emitted during these blowouts were not available, but the median oil and water volumes emitted were 0.05 m^3 (0.33 bbl) and 0.3 m^3 (2 bbl), respectively. Around a quarter of the blowouts emitted gas and or earth (sand, mud, etc.). The median volumes emitted were 6 m^3 (200 scf), and 0.035 m^3 (1.3 ft^3), respectively. The distribution of volumes emitted during blowouts is long-tailed, however, so the 95th percentile volumes emitted range from one order of magnitude greater (for oil) to four orders of magnitude greater (for water and gas).

Implications for geological storage of CO_2

The following paragraphs discuss implications of the well blowout statistics presented here for geological CO_2 -storage projects. This discussion is based upon an analogy between steam and CO_2 injection, which is obviously an imperfect analogy. However, qualitative consideration suggests the analogy is sufficiently strong to allow drawing these implications. Steam is significantly more buoyant (lower density) than supercritical CO_2 . Steam injection depths are shallower than CO_2 -storage depths. Therefore steam injection areas in District 4 are likely to have older abandoned wells, and therefore a lower likelihood of well bore blockages sufficient to stop fluid flow from the reservoir up the well bore, than typical CO_2 -storage fields. Conversely, steam is less expansive than near-supercritical CO_2 , and steam can be quenched to a liquid as it migrates upward. Combining these countervailing considerations, the well blowout rates in District 4 areas with steam injection may not be significantly different from those in CO_2 -storage fields.

1. Blowouts in District 4 during field operation are rare events. In thermal-recovery fields, blowouts occur at an annual rate of 1 per 7,100 steam-flood injection wells, 1 per 130,000 idle/shut-in wells, and 1 per

98,000 P&A wells. For a geological storage project in an area with wells of the same age distribution and depths, similarly low rates of blowouts would be anticipated. For a project with younger wells, lower blowout rates could be anticipated, with the caveat that well cement corrosion by CO_2 may be greater or less than by steam.

2. Blowout rates declined dramatically over the 15-year study period. The decline in total blowouts per year in District 4 is apparently a result of increasing experience, improved technology, and/or changes in safety culture in the oil and gas industry. This decline indicates that blowout rates in CO_2 -storage fields can be minimized, both initially and with increasing experience over time, if the CO_2 -storage industry is dedicated to the effort.
3. Data from District 4 suggest that blowout frequency increases with higher wellhead pressure. If this hypothesis is correct, then the blowout rate for CO_2 -injection wells may be higher because the minimum wellhead pressure of 6 MPa (870 psi) for CO_2 injection is higher than the wellhead pressure of 3 MPa (440 psi) for steam injection in District 4. Six MPa (870 psi) is just above the minimum liquid pressure for CO_2 at 20°C (68°F). The minimum pressure increases with temperature. Carbon dioxide should be injected in the liquid or supercritical phase to prevent unstable phase transitions in the well bore, which would cause unstable injection pressures.
4. There were no injuries to the public. Only 4 of the 102 blowouts resulted in public impact, although it is worth noting the population density in District 4 is low, with most fields underlying population densities of 0–4 persons/ km^2 (0–10 persons/ mi^2). The most severe long-term public impact consisted of the demolition and reconstruction of one partially constructed home and the filing of several lawsuits. This impact resulted from oil misting of a neighborhood, which is unlikely in CO_2 blowouts.
5. Injuries to workers occurred in approximately 15% of the blowouts where workers were present (drilling, servicing, reworking, and plugging and abandoning). The extent to which worker injury rates caused by blowouts in geological storage projects will be the same as in District 4 is unknown, owing to the different nature of the hazards. Some of the hazards associated with blowouts in these different fields are similar—for example, injury from physical hazards such as tripping, falling and contusions. Other hazards are very different. The fire hazards from oil and gas well blowouts are not expected during CO_2 blowouts. The large volume increase caused by the supercritical to gas transition as pressure drops is unique to CO_2 .

Skinner (2003) notes that this expansion can cause supersonic exit velocities. It also causes cooling. This can cause formation of hazardous water ice and/or dry ice projectiles or snow from the well, and reduced visibility near the well resulting from water condensation in the atmosphere. Skinner (2003) reports these phenomena have made managing CO₂ blowouts during CO₂-EOR difficult using current techniques.

6. Approximately 75% of steam injection well and abandoned-well blowouts in thermal-recovery fields combined resulted in environmental damage. This damage was typically relatively minor, consisting primarily of earth displacement with a median volume of 2.3 m³ (81 ft³). A similar rate of environmental damage may be expected from CO₂ blowouts.
7. The median blowout duration was 6 h and the 95th percentile duration was 3.5 days. Based upon the observations of Skinner (2003), CO₂ blowout durations will likely be longer using current blowout control techniques. Blowout durations after storage-field closure will also likely be longer, owing to less intensive monitoring and ready response compared to operational oil fields. The number of such blowouts will be small, however, since all the storage-field wells will be plugged and abandoned or idle/shut-in at this time, and the reservoir pressure will be decreasing as a result of pressure dissipation, and/or CO₂ dissolution and mineralization.

Conclusions

Data from 102 well blowouts between 1991 and 2005 in California Oil and Gas District 4 were analyzed. District 4 produced three quarters of the oil in the state, with the majority of this via thermally enhanced recovery using steam injection. The blowout occurrence and consequence rates and consequence types developed in this report for oil fields with thermally enhanced recovery can be used to inform risk assessments of well blowouts in CO₂-storage projects. Appropriate caution should be used, however, because of the different thermomechanical stresses, blowout fluid compositions, and chemistry/phase effects in CO₂-storage projects.

The frequency of blowouts in District 4 decreased dramatically during the study period. This decrease is not explained by a reduction in either total or per well fluid handling in the district. The most likely explanations are increased experience, improved technology, and/or changes in the safety culture in the oil and gas industry. Any of these explanations suggest that blowout risks can also be minimized in CO₂-storage fields.

The blowouts analyzed did not cause any injuries to the public, but caused one worker fatality and several worker injuries. Impact to the public consisted of an evacuation and damage to a neighborhood, an evacuation of a school, a power outage at a farm, and three highway closures.

The blowout rate from abandoned wells in steam injection areas was quite low, at 1 per 98,000 P&A wells per year. Consideration of CO₂ versus steam injection suggests the abandoned-well blowout rate in CO₂-storage fields may not be dissimilar. The abandoned-well blowout rate per area in thermal fields was estimated as between 0.00064 and 0.0014 blowouts per km² per year (0.0017 and 0.004 blowouts per mi.² per year) at a P&A well density between 75 and 163 P&A wells per km² (194 and 422 per mi.²), or between 0.75 and 1.6 P&A wells per ha (3.3 and 1.5 acres per P&A well). Blowout rates from shut-in/idle wells in thermal fields were also quite low, at 1 per 130,000 wells per year.

Blowouts occurred from 1 per 7,100 steam-flood injection wells in operation per year and 1 per 4,700 million m³ (30,000 million bbl) of fluid injected through these wells. More than half of these resulted in environmental damage, consisting of earth displacement due to blowouts meters to hundreds of meters away from the well head.

Half of the blowouts in steam injection areas took place when workers were on site during well drilling, reworking, servicing, or plugging and abandoning. A sixth of these caused injuries to workers, and a quarter damaged the environment. Blowouts occurred in 1 per 3,100 well drilling, reworking, and plugging and abandoning operations in steam injection areas, and 1 per 1,400 operations in non-thermal fields. Based on this comparison, along with worker injury severity, public impact, blowout fluid composition, quantity and duration, the blowout risk in thermal fields was significantly lower than in non-thermal fields.

Reservoir pressure will increase with time in CO₂-storage fields during injection, as opposed to oil and gas fields where reservoir pressure tends to decrease with time during production. Considering this, and the lower overall rates in thermal fields, the drilling blowout rates in CO₂-storage fields will likely be somewhat lower than the plugging and abandoning rates in District 4. Similarly, the plugging and abandoning blowout rates in CO₂-storage fields will likely be somewhat lower than the drilling blowout rates in District 4.

The District 4 blowouts indicate operating pressure, rather than fluid type, is a primary, positively correlated parameter for per well per year blowout rates. Therefore, the downward trend in blowouts per year notwithstanding, and with all other conditions being equal, the data suggest that the CO₂-injector blowout rate will be higher than the District 4 steam-flood-injector blowout rate per well per year, and the same or lower per-fluid volume. However,

further studies of blowout rates in fields with significantly higher well pressures, flow rates, and CO₂ injection are needed to check these conclusions. Obviously, similar studies in fields with CO₂-EOR would be particularly useful for analyzing the effect of CO₂ versus other fluid types. Similar studies in natural gas storage fields would offer perspective from yet another fluid type and set of pressure conditions. It might also be useful to study blowout rates in less rural areas to determine if the rates and consequences differ.

Acknowledgments We are grateful to Michael Stettner (Underground Injection Control Manager for DOGGR) for coordinating provision of the blowout data, and answering questions, Dave Mitchell (District 4 office) for supplying the digital blowout data, and Dan Tuttle and Mark Gamache (District 4 office) for answering questions, running queries, and supplying paper blowout record copies. We thank Estella Aguilar and Mary Fuller at the *Bakersfield Californian* for their patience in comprehending our request, subsequently diligently searching the newspaper's archives, and providing articles regarding blowouts in District 4. These articles were critical to increasing our confidence in the outcome of this study. We are also grateful to Alfredo Urdaneta (Aera Energy) for answering numerous questions about thermally enhanced production parameter values in general and in District 4. Michael Stettner and Dan Tuttle (DOGGR) kindly reviewed the paper, and Curt Oldenburg and Jens Birkholzer (LBNL) also provided valuable reviews (twice!). Jens's review in particular led to 1) the incorporation of more data streams in the analysis, and 2) the realization that well-head pressure, more than any other parameter, correlated with blowout rate. Comments from Sean Brennan, Environmental Geology's reviewer, led to the statistical analysis section, which significantly strengthened the paper. David Schlessinger, of Kaiser Permanente, kindly volunteered to advise us on this aspect of the paper. This said, the authors take full responsibility for the data analysis and conclusions.

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0008-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment states that the SREIR (August 2020) fails to correct errors identified by the Court of Appeal, Fifth Appellate District in *King and Gardiner Farms, LLC v. County of Kern*, and does not meet the requirements of CEQA and the CEQA Guidelines. Case No. F077656, Slip Opinion, (Cal. Ct. App. 5th Dist. Feb. 25, 2020), at p. 140.

As noted in Global Response (GR) 1 – Beyond the Scope of the SREIR, the Court of Appeal’s decision upheld the 2015 FEIR against all of the claims raised on appeal except for “five areas in which the EIR did not comply with CEQA: (1) mitigation of water supply impacts; (2) impacts from PM2.5 emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well Health Risk Assessment for public review and comment.” Slip Opinion, at p. 140. In response to this decision, on May 19, 2020, the County Board of Supervisors rescinded the 2015 FEIR and the Ordinance, reinstated the current ordinance, and directed the County Planning and Natural Resource Department to correct the deficiencies identified in the Court of Appeal’s decision. See SREIR (October 2020), Vol. 1, at 1-2. The SREIR provides additional CEQA analyses to correct the deficiencies found by the Court of Appeal, including additional impact analyses in the areas of agricultural and forest resources (Section 4.2), air quality (4.3), hydrology and water quality (4.9), noise (4.12), utilities and service systems (4.17), and supplemental analyses with clarifications on mitigation measures (4.18). See SREIR (October 2020), Vol. 1, at 1-9. The comment states that the SREIR (August 2020) fails to (1) identify effective mitigation for the Project’s significant impacts on agricultural land conversions, (2) update the 2015 FEIR’s analysis of water impacts; (3) mitigate the Project’s significant noise impacts, and (4) correct the errors in the County’s Cumulative Health Risk Assessment.

- For a more detailed response to #1 above, please refer to Responses to Comment 0008-3 to 0008-15.
- For a more detailed response to #2 above, please refer to Responses to Comment 0008-16 to 0008-18.
- For a more detailed response to #3 above, please refer to Responses to Comment 0008-19 to 0008-26.
- For a more detailed response to #4 above, please refer to Responses to Comment 0008-27 to 0008-61.

The comment states that the following technical reports were previously submitted in connection with the Project as analyzed under the 2015 FEIR, and that each of them remains applicable to the Project under the SREIR:

1. J. David Hughes, Comment on Draft Supplemental Recirculated Environmental Impact Report, Revisions to the Kern County Zoning Ordinance – 2020 A (Hughes Report).
2. Charles M. Salter Associates, Inc., Kern County Zoning Ordinance Revision, Acoustical Comments On Draft Supplemental Recirculated Environmental Impact Report (Salter Report).
3. Phyllis Fox, Report on the Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020 A, focused on Oil and Gas Local Permitting (Fox Report).

Each of these technical reports was re-reviewed and considered in the preparation of the SREIR (August 2020 and October 2020). Moreover, the written responses discuss these technical reports as follows:

- The Hughes Report is addressed in Responses to Comments 0008-31 to 0008-40.
- The Salter Report is addressed in Responses to Comments 0008-41 to 0008-57.
- The Fox Report is addressed in Responses to Comments 0008-58 through 0008-62.

0008-2

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. The comment requests responses to comments in the comment letter and the three reports attached to the letter.

Each comment was considered and a response provided in the response to the comment letter, including responses for each of the three technical reports attached to the comment letter. See Response to Comment 0008-1.

0008-3

Please see Responses to Comments 0008-4 through 0008-15 regarding mitigation for the impact of agricultural land conversion to non-agricultural use. Consistent with the Court of Appeal's decision, former MM 4.2-1 from the 2015 FEIR, which is discussed in this comment, has been removed. That mitigation measure has been replaced by new MM 4.2-1 in the SREIR (October 2020), Vol. 1, at 4.2-31. New MM 4.2-1 provides mitigation for conversion of defined agricultural land by capping disturbance per well at between 1.2 and 3 acres, depending on the Subarea; requiring removal of legacy oil and gas equipment that is within the applicant's control on the same parcel of agricultural land; and prohibiting siting and construction of new disposal ponds on such lands. The comment states correctly that the Court of Appeal approved the option of removing legacy oil and gas equipment as effective mitigation for the impact of agricultural land conversion. The comment also does not object to the deletion of subsection (d) of former MM 4.2-1 from the 2015 FEIR, which provided the option to mitigate the impact of agricultural land conversion by participating in an agricultural farmland mitigation program. This comment is noted. Former MM 4.2-1 from the 2015 FEIR has been deleted in its entirety and replaced by new MM 4.2-1 in the SREIR (October 2020).

0008-4

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment states that the Draft (August 2020) misreads the Court of Appeal opinion to prohibit use of conservation easements as mitigation for the impact of agricultural land conversion.

Please see Response to Comment 0008-5.

0008-5

The comment states that the SREIR (August 2020) misreads the Court of Appeal's opinion to prohibit use of agricultural conservation easements as mitigation for the impact of agricultural land conversion. Even if a project's benefits outweigh impacts that cannot be mitigated, the comment asserts that conservation easements still provide a feasible means of partial mitigation for agricultural land conversion as required by CEQA.

The comment is correct that CEQA requires feasible mitigation that lessens a project's impacts, even if reduction to a level below significance is not feasible. Conservation easements do not provide an effective means of even partial mitigation for agricultural conversion impacts. See SREIR (October 2020), Vol. 1, at 4.2-29–30. As the Court of Appeal concluded:

Entering into a binding agricultural conservation easement does not create new agricultural land to replace the agricultural land being converted to other uses. Instead, an agricultural conservation easement merely prevents the future conversion of the agricultural land subject to the easement. Because the easement does not offset the loss of agricultural land (in whole or in part), the easement does not reduce a project's impact on agricultural land. The absence of any offset means a project's significant impact on agricultural land would remain significant after the implementation of the agricultural conservation easement. Restating this conclusion using the data from this case, the implementation of agricultural conservation easements for the 289 acres of agricultural land estimated to be converted each year would not change the net effect of the annual conversions. At the end of each year, there would be 289 fewer acres of agricultural land in Kern County. Accordingly, under the thresholds of significance listed in the EIR, this yearly impact would qualify as a significant environmental effect. Slip Opinion, at p. 80–81 (footnotes omitted).

It is not possible to reduce a project's agricultural land conversion impact by means of conservation easements because such easements do not offset the loss of converted agricultural land, in whole or in part. The comment notes that the Court of Appeal decision cited two cases that upheld agricultural easements as CEQA mitigation, *Citizens for Open Government v. City of Lodi* (2012) 205 Cal.App.4th 296 (*Lodi*) and *Masonite Corp. v. County of Mendocino* (2013) 218 Cal.App.4th 230 (*Masonite*). However, the Court of Appeal distinguished the *Masonite* case, which rejected a different claim (that agricultural conservation easements are legally infeasible) and did not consider the net effect of agricultural conservation easements. Slip Opinion, at p. 81, n. 32. When the petitioners in *King & Gardiner Farms, LLC v. County of Kern* challenged MM 4.2-1 in the 2015 FEIR, they also distinguished *Masonite*, arguing that the *Masonite* "case simply upholds a local government's authority to impose a conservation easement requirement." *King and Gardiner Farms, LLC v. County of Kern*, Petitioner King and Gardiner Farms' Reply Brief in Support of Petition for Writ of Mandate (filed in Kern County Superior Court, April 17, 2017), p. 29. The *Lodi* case also rejected a different claim: that conservation easements at a 2:1 ratio (that is, a 2-acre easement for each acre of

agricultural land converted to other uses) should be required as feasible mitigation. The *Lodi* court held that substantial evidence supported the City's finding that there was no feasible mitigation for the agricultural conversion impact:

The EIR acknowledges that agricultural easements are not mitigation in the true sense of the word. They do not lessen the impact to the loss of the farmland.... As such, no ratio, no matter how high[,] will achieve a mitigation effect, and no particular ratio can be ultimately justified as the scientifically correct one.

Lodi, 205 Cal.App.4th at 322 (quoting the City's EIR addendum). Consistent with *Lodi*—which upheld the city's finding that "obtaining an agricultural conservation easement at a 1:1 ratio would *not* mitigate the conversion of 40 acres of agricultural land to urban purposes,"—the Court of Appeal "agree[d] with [King and Gardiner] Farms' contention that [former] MM 4.2-1.a does not provide effective mitigation for the conversion of agricultural land." Slip Opinion, at p. 79, 81. Based on the Court of Appeal's analysis, conservation easements do not provide an effective means of even partial mitigation for agricultural conversion impacts. "Because the easements does [sic] not offset the loss of agricultural land (in whole or in part), the easement does not reduce a project's impact on agricultural land." Slip Opinion, at p. 80. The comments regarding beneficial aspects of agricultural conservation easements in Kern County and practices elsewhere in the state are noted and will be considered by County decisionmakers. Based on the Court of Appeal's analysis and holding in *King & Gardiner Farms, LLC v. County of Kern*, conservation easements do not provide effective mitigation for the conversion of agricultural land.

0008-6

The comment states that the SREIR (August 2020) removed former MM 4.2-1 based on the erroneous assumption that it was in conflict with the Sustainable Groundwater Management Act (SGMA), because easements must mandate a level of agricultural water use that would necessarily conflict with SGMA restrictions.

The comment is incorrect. Former MM 4.2-1 was removed based on the Court of Appeal's analysis concluding that it is not possible to reduce a project's impact on agricultural land by requiring a conservation easement because such easements do not offset the loss of agricultural land in whole or in part. Please see Response to Comment 0008-5. The relevant text in SREIR (October 2020), Vol. 1, at 4.2-32, was revised to state:

The SGMA legislation and resultant Groundwater Sustainability Plans provide limitations for individual farmers' management of their lands and disincentivize entering into agricultural easements that limit the use of the land. While individual land owners can continue to voluntarily enter into these easements for agricultural uses that do not conflict with restrictions on groundwater use, over time this practice is likely to be affected on a County-wide basis as a result of the SGMA process. In any case, the appeals court has determined that conservation easements ~~they~~ do not mitigate the loss of agricultural land under CEQA. Therefore the 2015 FEIR MM 4.2-1, which required 1:1 mitigation with an agricultural easement, has been deleted as not legally implementable or feasible mitigation.

0008-7

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. Please see Responses to Comments 0008-3 through 0008-6.

0008-8

The comment states that former MM 4.2-1.b from the 2015 FEIR—which provided an option for mitigation of agricultural land conversion impacts by purchase of credits for conservation of agricultural lands from an established agricultural farmland mitigation bank or equivalent program—was removed from the SREIR without explanation. The comment proposes that such a program should be created.

Please see Responses to Comments 0008-3 through 0008-5 regarding removal of former MM 4.2-1a. The SREIR (October 2020) was revised from the SREIR (August 2020) to clarify that former MM 4.2-1b was also removed based on the Court of Appeal's analysis. See SREIR (October 2020), Vol. 1, at 4.2-29. The Court of Appeal concluded that former MM 4.2-1.b did not provide effective mitigation for the impact of conversion of agricultural land to non-agricultural use. The Court found no substantial evidence that a farmland mitigation bank or equivalent program was available that would offset the conversion of agricultural land to oil and gas activities. The Court concluded that, if any such programs did exist and operated like the conservation easements in MM 4.2-1.a, they would not actually offset the conversion of agricultural land. Slip Opinion, at p. 82-84. A farmland mitigation bank or equivalent program does not exist in Kern County. The in-lieu fee programs cited by the comment, adopted by the Cities of Brentwood, Davis, Stockton, and Vacaville, utilize the fees to acquire agricultural conservation easements or fee title to existing agricultural lands. See Brentwood Municipal Code section 17.730.030(B); Davis Municipal Code section 40A.03.010 – 080; City of Stockton Resolution 07-0080 (2007); Vacaville Municipal Code Ch.

14.28.001. The comment also cites a document prepared by the Institute for Local Self Government, titled Farmland Protection Action Guide: 24 Strategies for California (2002), p. 48, which describes the City of Davis program as an example, and states: “Only a few agencies in the state have adopted mitigation programs to offset the conversion of farmland. These programs generally require developers to negotiate and purchase an easement themselves (with agency approval) or pay an alternative in-lieu fee.... [T]he in-lieu fee means that the agency must devote resources, such as staff time and acquisition funds, to purchasing conservation easements.” Based on the Court of Appeal’s analysis, if such a program were created, it would merely prevent the future conversion of agricultural land subject to conservation easements or purchased in fee, and would not provide effective mitigation.

0008-9

The comment states that the SREIR (August 2020) removed former MM 4.2-1.c, which provided for removal of legacy equipment as an option for mitigating agricultural land conversion impacts, based on the erroneous assumption that such mitigation was preempted by state law.

The comment is incorrect. Former MM 4.2-1.c was removed based on the analysis in the SREIR (August 2020) that changing the former option for legacy equipment to a mandatory mitigation measure for all applicants would not be feasible. Not all surface owners’ property includes legacy oil and gas equipment. Where such equipment exists, the applicant may not have the right to remove it. Applicants cannot feasibly comply with the requirements of state law for removal of legacy equipment that they do not own or control. However, where legacy equipment exists and the applicant does have the right to remove it, such removal would partially mitigate conversion of agricultural lands. The SREIR (October 2020) has been revised from the SREIR (August 2020) to add new MM 4.2-1.B regarding legacy equipment removal. Please see SREIR (October 2020), Vol. 1, at 4.2-31–33 and Responses to Comments 0002-2, 0008-10, and 0008-11 for discussion of new MM 4.2-1.B. The relevant text in the SREIR (October 2020), Vol. 1, at 4.2-32, was revised to state:

While state law and regulations do not preempt a local measure requiring operators to remove their own legacy equipment, operators cannot feasibly comply with these requirements for legacy equipment that they do not own or control. Therefore, the legal connection (nexus) and the legal authority to require operators who do not own or control such legacy equipment to remove the equipment and removal to return agricultural land back to the surface owner as a mandatory condition of receiving a County permit is beyond the County’s authority.

0008-10

The comment states that former MM 4.2-1.c was erroneously removed from the SREIR (August 2020) based on the assumption that it would be a mandatory mitigation measure, when this measure was included as an option in the 2015 FEIR.

Former MM 4.2-1.c has been replaced with new MM 4.2-1.B, which is mandatory where there is legacy equipment on the surface owner’s property that the applicant for the permit owns or controls. Please see SREIR (October 2020), Vol. 1, at 4.2-31–33, Responses to Comments 2-2, 8-9 and 8-11 regarding new MM 4.2-1.B.

0008-11

The comment states that former MM 4.2-1.c from the 2015 FEIR—which provided an option for mitigation of agricultural land conversion impacts by removing legacy equipment, and which was removed in the SREIR (August 2020)—should be restored. On reconsideration, the SREIR (October 2020) has been revised to add new MM 4.2-1.B regarding legacy equipment removal. Please see SREIR (October 2020), Vol. 1, at 4.2-31–33 and Responses to Comments 0002-2, 0008-9, and 0008-10 for discussion of new MM 4.2-1.B.

0008-12

This comment introduces other comments on the SREIR’s evaluation of a mitigation measure that would require clustering of oil and gas wells on agricultural land as mitigation for agricultural land conversion.

The comment is correct that the Court of Appeal found that the 2015 FEIR should have considered the clustering of wells where feasible. Accordingly, evaluation of a mitigation measure that would require clustering was included in the SREIR (August 2020), Vol. 1, at 4.2-31–32. In response to this and other comments, the discussion of clustering mitigation was clarified and expanded in the SREIR (October 2020), Vol. 1, at 4.2-33–40.

0008-13

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decision-makers. The comment states that a mitigation measure for agricultural land conversion that would require well clustering, necessitating horizontal drilling to reach dispersed mineral resources from clustered wells, would be feasible because horizontal and directional drilling “have become the norm in Kern County over the past decade.” The comment proposes that operators should be required to make the case for individual exemptions from a clustering mitigation requirement in the “rare reservoirs where directional and horizontal drilling would be geologically infeasible.” The comment also states that the SREIR ignores environmental benefits and does not support statements regarding adverse effects of well clustering. In support of these statements, the comment cites and attaches an exhibit prepared by J. David Hughes (Hughes [2020]), cited in Response to Comment 0008-1.

The comment and Hughes (2020) are incorrect because they focus on geologically atypical conditions and fail to distinguish between horizontal and directional drilling. Genuinely horizontal drilling remains relatively rare in Kern County, consistent with the widespread complex geological structures that are typically unfavorable to use of such a practice. However, in some portions of Kern County, minerals are deposited in relatively homogeneous horizontal layers over a large area, so that the drill bore can gradually be deviated laterally to access the formation, without hitting traps or targeting small pockets of oil. In those areas, horizontal drilling from larger clustered well pads is routinely utilized by agreement among surface and mineral owners.

The comment also notes that multi-well pad drilling has become the standard in many oil and gas jurisdictions in the U.S. and Canada. However, in those regions, including the Permian Basin of west Texas and southwest New Mexico, the Bakken Play of North Dakota, and the Niobrara Play of Colorado, geological formations are homogeneous and producible reservoirs that are laid out in flat and long intervals. There are also few operating enhanced oil recovery (EOR) projects in these areas. By contrast, formations in California, including Kern County, are largely dominated by faults and traps that do not allow clustering wells because the producible reservoirs are pinched out and discontinuous laterally. Reservoir geometry is often modified by complex structural environments where faulting creates isolated “rooms” within the geometry of the containing structure. While reservoir geometry is complicated by structural overprinting, the reservoir characteristic, notably porosity and corresponding permeability, is controlled by subtle differences in the lithology of the rock matrix. This added complexity serves to greatly complicate the design of a well drilling and completion program and requires flexibility in well design and drilling technique to provide safe, environmentally sound, and efficient oil production. EOR is common in Kern County and imposes functional constraints on well spacing. When EOR methods such as steam flooding and water flooding are used, precise well spacing is dictated by the need to mobilize and collect hydrocarbons from production wells surrounding the injection well. Reconfiguring the distribution of EOR wells in tighter clusters is technologically infeasible. EOR is used primarily in older fields such as in Lost Hills, Belridge, and other fields with shallow reservoirs, some of which contain agricultural land. Clustering wells is not geometrically feasible at a shallow target depth that would require sharp turns both vertically and horizontally to reconfigure EOR wells. Excessively sharp curves increase the probability of casing failure due to frictional heat and side loading. Drilling equipment is not capable of making near-right-angle turns from the vertical initiation of the bore to a horizontal or near-horizontal orientation. Even where the geology is amenable to drilling laterally, a well must be deep enough to accommodate a gradual horizontal turn.

The comment refers to a dataset of wells drilled in Kern County showing that, in 2020, 7 percent of wells were drilled horizontally, 76 percent were drilled directionally, and 17 percent were drilled vertically (Hughes 2020). However, for purposes of determining the feasibility of clustering mitigation, directional drilling that is only slightly deviated from vertical must be distinguished from horizontal drilling that extends laterally. Hughes (2020) did not report the angle of deviation in the wells categorized as “vertical,” “horizontal,” and “directional.” In a dataset of 9,803 wells drilled from 2000 to 2020 by the California Resources Corporation, the largest operator on split estate lands in Kern County, 44 percent were drilled vertically, 46 percent directionally, and 10 percent horizontally. See Letter 0012 from Alejandro Velasco, California Resources Corporation, October 20, 2020, which is included in Appendix G of the SREIR (October 2020) (Velasco 2020). The average inclination for the California Resources Corporation’s vertical and directional wells was 10.8 degrees and 18.3 degrees, respectively, compared to an average inclination of 82.09 degrees for horizontal wells capable of reaching laterally distributed resources. Fifty-three percent of the directional wells had an inclination of less than 20 degrees. The small deviation from vertical in the category of directional wells is mainly driven by geological constraints and reservoir configurations that are laterally discontinuous. Such directional wells are properly considered as distinct from the laterally deviating horizontal wells that can reach more distant resources. The low prevalence of horizontal wells (7 percent in Hughes’ dataset; 10 percent in the California Resources Corporation dataset) does not support the comment that well clustering would be a feasible mitigation measure, with few case-by-case exceptions.

Regarding the environmentally beneficial effects of well clustering in the limited areas where it may be geologically feasible, the discussion was clarified and expanded in the SREIR (October 2020) as follows:

A proposed mitigation measure that requires clustering can be expected to reduce the footprint of consolidated multi-well pads using common access roads and infrastructure, compared to the sum of the footprints of dispersed well pads with separate access roads and infrastructure. In addition to impacting fewer acres of agricultural land, clustering could also benefit wildlife species that co-exist with agricultural uses. Use of multi-well pads and common infrastructure can reduce construction time and cost. However, these incremental benefits from clustering mitigation may be reduced by other existing mitigation measures and incentives. Most future oil and gas production in Kern County is expected to occur in established oil fields that are many decades old, are already highly disturbed, and have well-developed infrastructure and access roads already in place. For efficiency, operators utilize existing access roads when available to connect to new pads, thus reducing surface disturbance. Furthermore, MM 4.1-4 requires applicants to use existing public access easements or County-maintained roads to access oil production areas, allowing new roads only if there is no existing public access easement or permission cannot be obtained to use an existing private access easement or private driveway/road. MM 4.2-2.h requires that overhead electrical or communication lines must be aligned with existing roads, existing lines and easements, existing private driveways, and/or parallel to tree or row crops. In addition, new MM 4.2-1, introduced in this SREIR (October 2020), caps the amount of land disturbance for new wells at 2.0 acres in the Western Subarea, 3.0 acres in the Central Subarea, and 1.2 acres in the Eastern Subarea.

A mitigation measure mandating the clustering of wells is reasonably expected to require horizontal drilling that would require longer drilling periods to reach the mineral source as compared to a vertical well. This would cause environmental impacts that are potentially greater than would occur if the drilling was allowed vertically on the agricultural land to begin with. While there would be some reduction of emissions associated with constructing fewer access roads, as noted above, most future oil and gas production in Kern County is expected to occur in established oil fields with access roads already in place, where the primary effect on emissions will be from incremental horizontal drilling. Longer drilling periods mean increased levels of construction related emissions, while emissions from later phases of a well's productive life would be unchanged. Horizontal drilling not only requires longer drilling times, which increase emissions, but also tends to require greater power. Operation of larger, higher horsepower engines for horizontal drilling results in higher emissions than vertical drilling for an equivalent distance. Moreover, the engines utilized in drilling operations come in discrete sizes. As a result, transitioning to the next larger size of engine, in order to achieve a given increase in power, may result in a disproportionate increase in emissions. Well pad preparation and construction emissions are negligible compared to emissions from drilling and primarily consist of PM₁₀. Therefore, consolidating wells on a single pad rather than separate pads would have little effect on overall emissions and, in particular, would not reduce NOX emissions. Thus, while a well clustering mitigation requirement would have the benefit of impacting fewer acres of agricultural land, it is reasonably expected to contribute to the cumulative overall emissions of criteria pollutants for which the air basin is in nonattainment.

Furthermore, mandatory well clustering would increase the potential for injury on and around the clustered well pad, increase traffic and related air emissions, and intensify the habitat disruption posed by densely clustered well drilling pads that may be necessary to conduct both horizontal and vertical drilling operations. Thus, while a well clustering mitigation requirement would have the benefit of impacting fewer acres of agricultural land, it is reasonably expected to exacerbate overall emissions of criteria pollutants for which the air basin is in nonattainment and, in some cases a Overlapping drilling, completion, and facility operations requires simultaneous operation of equipment, including drilling rigs, completion rigs, construction cranes, and heavy trucks and loaders, as well as increased personnel traffic, within a confined area on and around multi-well pads. Drilling laterally from a multi-well pad in a location with highly faulted geology under tectonic stress can also expose operations to greater risk. Penetrating unstable formations at the incorrect angle can lead to borehole breakout with a potential unplanned sidetrack and/or loss of the well. The higher density of activity may reduce the footprint, but also increase the risk and potential magnitude of incidents resulting in disturbance to lands and habitat, compared to dispersed activities at single well pads. A clustering mitigation measure would cause greater land disturbance impacts to relatively undisturbed land cover types as compared to than in adjacent agriculturally productive land, ~~in which case such a measure~~ could result in additional impacts to biological resources that would not occur if the well operator were permitted to access agricultural land for vertical drilling purposes. Accordingly, a mitigation measure requiring well clustering would not be effective in reducing, and is reasonably likely to exacerbate, the Project's overall adverse effects and is therefore infeasible. SREIR (October 2020), Vol. I, at 4.2-37 – 38.

The added discussion in the SREIR (October 2020) is supported by information provided in Velasco (2020) by an oilfield professional based on over 20 years of personal experience in domestic and international drilling projects, including 10 years working on drilling projects in California characterized by complex geological conditions. Where geologic conditions could accommodate well clustering, a mitigation measure that required clustering in all instances, regardless of the preference of individual surface and mineral owners, would reduce the flexibility of agricultural operations. Mandatory clustering would require use of a consolidated area, which may actually be an agriculturally productive area, even when scattered sites are better for the farm operation. There may be less productive areas for farming distributed in several locations throughout a given parcel, due to variations in soil quality, water supply, slope, drainage, access for farm equipment, past uses of the property, and other factors. The individual farmers are best able to identify the most agriculturally productive configuration of uses on split estate lands. See SREIR (October 2020), Vol. 1, at 4.2-33–35. Please also see Comment 0006-15, which suggests that “the farmer may select a corner or edge of their field where irrigation and farming operations will be least interrupted in the judgement of the farmer,” and Response to Comment 0006-15.

0008-14

Citing Hughes (2020), which presents data from the Kern County Assessor’s Office, the comment states that “individual mineral tenures are quite large” in Kern County and so would not constrain horizontal drilling, create a risk of takings claims, or render a clustering mitigation measure legally infeasible. Mr. Hughes states that he is an earth scientist and has studied unconventional oil and gas resources across the U.S. and Canada, including California, but does not represent himself as an expert on oil and gas law or mineral rights.

The comment is incorrect. Many mineral leaseholds in Kern County are modest in size, limiting the quantity of resources that can be accessed by horizontal drilling across a single parcel. Over half of the mineral leases are less than 40 acres in size, and 20 percent of the leases are less than 20 acres, while only 7.26 percent are 640 acres or greater, and these tend to be located in old established oil fields such as Elk Hills, Midway Sunset, Cymric, and Kern River, where interests have been consolidated over time. See Velasco (2020).

The comment incorrectly relies on data from the Office of the Kern County Assessor for the proposition that “individual mineral tenures are quite large.” The data show only one producing mineral owner on each lease for property tax purposes. The Board of Equalizations, Assessors’ Handbook, available at <https://www.boe.ca.gov/proptaxes/pdf/ah201.pdf>, states: “In the case of multiple owners of undivided interests in one parcel, put only one or two names on the roll, followed by ‘et al.’ When there are more than two owners, an assessor might find it impractical to identify on the roll all persons holding an undivided interest in the property.” It is the exception, not the rule, to have only one record title owner in a mineral tract. See Letter from Michael Mills, Stoel Rives LLP, dated October 16, 2020 (Mills 2020). Most mineral rights in Kern County are owned by at least two or more mineral owners (Mills 2020). Many mineral tracts in the County have more than one record title holder owning various percentages of the mineral rights, and some tracts have hundreds of fractional owners, which may be stratified vertically as well as horizontally (Mills 2020).

The complexities of fractional ownership, as well as fractured geology dominated with faults, traps, and pockets of oil, preclude simply drilling straight through from one end to the other of a series of parcels and interests that may appear under one company’s name as a common “mineral tenure” based on the tax rolls (Mills 2020). A mineral owner’s legal right under state law to use the surface estate to access minerals does not extend to mineral estates on other lands. In order to drill from the surface of tract A to reach minerals in tract B, the tract B mineral owner must obtain the permission of the tract A surface owner. Without permission, the tract B mineral owner has no right of entry and the use of the tract A surface is a trespass. Even if the mineral lessee is the same in tracts A and B, the fact that there is a common lessee of adjacent or nearby tracts is not sufficient under the law to allow drilling from one tract into the other. The mineral owner’s right to use the surface of tract A is limited to the amount of tract A surface that is reasonably necessary for production from tract A, and constructing a larger well pad on tract A to accommodate horizontal drilling into tract B could exceed the reasonable use of tract A. Clustering could not be accomplished without securing the necessary rights from all parties in leaseholds, which may be highly complex. It is likely that some mineral owners will be unable to secure all necessary rights to legally produce their minerals from other parcels, potentially exposing the County to liability for takings. See Mills (2020).

The added discussion of mineral interests in the SREIR (October 2020), Vol. 1, at 4.2-33 and 38–40 is supported by information provided in Mills (2020) by an attorney practicing in the field of oil and gas for over 20 years, who has helped prepare over 128 drilling title, division order, and acquisition title opinions for mineral title issues in Kern County since 2009, and

represented several upstream oil and gas companies in connection with leasing, title trespass, and related subsurface development issues.

0008-15

The comment states that the SREIR does not provide substantial evidence, based on the correct legal standard, to support finding that a mitigation measure requiring clustering is infeasible. This comment states a conclusion to the preceding comments and does not require a detailed response.

Please see SREIR (October 2020), Vol. 1, at 4.2-33–40 and Responses to Comments 0008-13, 0008-14, and 0008-32 through 0008-40 regarding the support for the conclusion that a mitigation measure requiring clustering of wells on agricultural land is infeasible.

0008-16

The comment states that the SREIR (August 2020) water supply baseline was not adequately updated, did not sufficiently address the recent drought, and did not consider the analysis of Project subareas as discussed in *King & Gardiner Farms, LLC v. County of Kern* (2020) Case No. F077656, Slip Opinion, (Cal. Ct. App. 5th Dist. Feb. 25, 2020).

The Slip Opinion upheld the environmental baseline, Project subarea analysis, and drought discussion in the 2015 FEIR. The Slip Opinion noted that the formation of the first Groundwater Sustainability Plans (GSPs) for applicable groundwater basins in the Project Area as required under the SGMA constituted new information. Section XII.E.1 of the Slip Opinion discussed the inclusion of this new information in the water supply baseline as follows:

The EIR's analysis of water supply impacts concluded the implementation of SGMA created uncertainty in predicting the available water supplies for the Project area. Under SGMA, one or more local groundwater sustainability agencies must be formed to cover the Kern County subbasin. These agencies have been formed and they may have released a groundwater sustainability plan, or a coordinated set of plans, by January 31, 2020. The formation of these agencies constitutes new information as will the plan or plans they adopt. The availability of information about new wells in critically overdrafted groundwater basins was increased by legislation adopted in 2017 and operative through January 30, 2020....Accordingly, the information about groundwater supply and use has increased since the preparation of the draft EIR and that information will have lessened the uncertainty described in the draft EIR. Consequently, for a revised EIR to provide a meaningful analysis of the Project area's water supply that is useful to the public and decisionmakers evaluating whether to reapprove the Ordinance, the analysis of water supply must be brought up to date. Slip Opinion, at p. 146–147.

The court stated that “[n]onetheless, as discussed in part XII. of this opinion, the EIR must be revised if the County chooses to readopt the Ordinance. The revised discussion of water supply impacts must be updated; providing that updated information and describing the new baseline conditions necessarily will take account of the conditions created by the drought.” Slip Opinion, at p. 31, n. 19.

The Court also upheld the 2015 FEIR water supply analysis of the Project Area and three Project Subareas because “[t]he information about the uncertainty created by SGMA and the implementation of groundwater sustainability plans for the Project area's largest water source provides substantial evidence supporting the determination that a more localized analysis of water supply impacts would be speculative.” Slip Opinion, at p. 24, n. 15. The Court stated that “[w]hether the updated information,” discussed in in Section XII.E.1 “will warrant an analysis of impact to water supplies at a level other than the subareas used in the original EIR is a question that must be decided in the first instance by the County in its role as lead agency.” Slip Opinion, at p. 24, n. 15.

The SREIR (August 2020) contains a detailed discussion of the SGMA process, including the formation of GSAs and the adoption of GSPs and Management Area plans within the Project Area. This discussion includes consideration of hydrological conditions, including the most recent drought and groundwater recharge related to annual precipitation through October 2019 based on the information provided in the 2020 Annual Report prepared by the Project Area GSAs as required by the SGMA. See SREIR (October 2020), Vol. 1, at 4.9-15–16. Potential future hydrological conditions over a 50-year planning and implementation horizon extending to 2070 as required by the SGMA, including projections under baseline, potential 2030 climate change assumptions, and potential 2070 climate change assumptions, are summarized and presented in table formats in the SREIR. See SREIR (October 2020), Vol. 1, at 4.17-29–39. The SREIR provides detailed summaries of each of the SGMA GSPs and Management Area plans adopted within the Project Area, including the historical and anticipated future impacts, if any, of oil and gas activities within the implementation area of each GSP and Management Area plan. See SREIR (October

2020), Vol. 1, at 4.9-29–52. The SREIR (October 2020) further clarifies how the water supply baseline was updated in compliance with the Slip Opinion as follows:

This SREIR updates the water supply baseline and Project water supply impact analysis with SGMA information available since the 2015 FEIR. Groundwater (Section 4.9, Hydrology and Water Quality) and water supply (Section 4.17, Utilities and Service Systems) conditions are described for the Project Area as a whole and for three subareas: the western, central, and eastern portion of the Project Area. This analytical framework reflects both the hydrogeology of the Project Area and the comprehensive, basin-wide sustainable groundwater planning solutions required to comply with the SGMA. The Eastern Subarea encompasses the Sierra Nevada foothills, which have generally higher groundwater quality and receive more recharge from adjacent watershed runoff than other locations. The hydrogeology of the Central Subarea is dominated by the Central Valley plain and agricultural land uses where a small percentage of potential Project oil and gas activity would occur. The Western Subarea includes the coastal range that forms the western edge of the Central Valley with significantly lower groundwater quality and less surface runoff. As shown in Figure 4.9-AA, below, the Kern County Subbasin underlies almost all of the Project Area and is being managed under a coordination agreement by 11 GSAs implementing five GSPs and 15 management area plans to comprehensively achieve SGMA requirements by 2040 for the basin as a whole. The Project Area and subarea analyses represent a logical and appropriate approach for analyzing the Project's potential hydrology and water quality and water supply impacts that is consistent with the SGMA's coordinated and comprehensive basin-wide management requirements.

To update the water supply baseline, each GSP and management area plan adopted for any portion of the Project Area was reviewed to identify the extent to which oil and gas operations were identified as a significant factor affecting the achievement of SGMA objectives for applicable subbasins and basins. As discussed above, the SGMA requires that each designated basin and subbasin be managed under a common set of assumptions and objectives, and each GSP and management area plan provide information about potential oil and gas water supply impacts within discrete locations throughout the Project Area where local water management agencies have developed specialized expertise and information concerning local conditions based on common, basin-wide technical, planning and management criteria. Most GSPs and management area plans include water supply and demand Projections over a 50-year planning and implementation horizon, which extends to 2070 for the Kern County Subbasin, for the applicable plan area based on the coordinated water budget required under the Coordination Agreement. The purpose of this analysis was determine whether any GSP or management area plan in the Project Area provided new information suggesting that that oil and gas activities would adversely affect anticipated water supplies, water demand, water quality, subsidence, and other SGMA requirements in any portion of the Project Area or one or more subareas as reflected in each plan to a greater extent than considered in the 2015 FEIR.

As summarized below, and in Appendix D and Section 4.17, Utilities and Service Systems, none of the adopted GSPs and management areas plans within the Project Area identify oil and gas operations as a significant factor affecting the achievement of any of the SGMA objectives. None of the 50-year water supply and demand projections included in any adopted GSP or management area plan include oil and gas–related activity as a significant net consumer or other factor reducing available supplies over time. Almost all of the GSPs and management area plans explicitly exclude oil and gas operational areas, and exempted aquifers under the Underground Injection Control program (discussed below), from SGMA-regulated groundwater basins. Several identify the potential use of treated and/or blended oil and gas produced water as a potential source of new imported water that would increase available supplies for agricultural irrigation purposes and reduce potential groundwater demand over time. Consequently, the review of each of the GSPs and management area plans in the Project Area determined that none of the plans provided new information indicating that the Project's water supply and other SGMA-related impacts, including water quality, would be greater in magnitude or scope than previously considered. In contrast, the GSPs and management area plans do provide new information indicating that the importation of treated produced water from oil and gas operations into several SGMA plan areas could increase available water supplies and facilitate SGMA implementation. SREIR (October 2020), Vol. 1, at 4.9-15 [Water Supply Baseline Update].

The SREIR (October 2020) also provides additional information concerning Project Area hydrological conditions, including drought monitor data through October 2020 and data showing that there is no long-term precipitation trend in California from 1895 to 2020 as reported by the National Oceanic and Atmospheric Administration, National Centers for Environmental Information. See SREIR (October 2020), Vol. 1, 4.9-23–24 and Figure 4.9-FF: NOAA Monthly Precipitation and Trend, California 1895–2020. The SREIR contains a thorough update of the water supply baseline that incorporates all of the new information identified in the Slip Opinion. Each GSP and Management Area plan adopted for any portion of the Project Area, and water supply and demand projections extending to 2070 developed in compliance with the SGMA for applicable groundwater basins

in the Project Area, was analyzed with reference to the discussion of historical and projected future oil and gas activity impacts. None of the adopted GSPs or Management Area plans within the Project Area identify oil and gas operations as a significant factor affecting the achievement of any of the SGMA objectives. None of the 50-year water supply and demand projections included in any adopted GSP or Management Area plan include oil and gas-related activity as a significant net consumer or other factor reducing available supplies over time. Several identify the potential use of treated and/or blended oil and gas produced water as a potential source of new imported water that would increase available supplies for agricultural irrigation purposes and reduce potential groundwater demand over time.

The SREIR discusses Project Area hydrology utilizing the most current available information concerning the recent drought, data provided by government agencies, and recent groundwater conditions and future projects through 2070, which include potential climate change effects, developed and reported by Project Area GSAs in accordance with the SGMA. The SREIR fully complies with the water supply update, and the analysis level and drought condition considerations discussed in the Slip Opinion.

0008-17

The comment states that the SREIR (August 2020) did not update and deepen the water supply impact analysis, including analyzing impacts at the GSP level, or consider local issues such as the risk of local district water rationing or wells running dry as a result of lowered water tables.

The SREIR (August 2020) and SREIR (October 2020) comprehensively update the 2015 FEIR baseline and analysis to incorporate new information generated by the SGMA process, as discussed in Section XII.E.1 of the Slip Opinion. Please see Response to Comment 0008-16. This analysis includes a summary and consideration of the discussion of historical and potential future oil and gas activity impacts in each GSP and Management Area plan adopted for any portion of the Project Area. See SREIR, Vol. 1, at 4.9-29-52. The SREIR further analyzes projections of water supply and demand, including groundwater levels and availability, prepared for the Kern County subbasin as mandated by the SGMA over a 50-year planning and implementation horizon to 2070, under baseline, potential 2030 climate change conditions, and potential 2070 climate change assumptions. See SREIR Vol. 1, at 4.17-29-39.

The SREIR analysis found that “none of the adopted GSPs and management areas plans within the Project Area identify oil and gas operations as a significant factor affecting the achievement of any of the SGMA objectives. None of the 50-year water supply and demand Projections included in any adopted GSP or management area plan include oil and gas-related activity as a significant net consumer or other factor reducing available supplies over time.” In contrast, several of the GSPs and Management Area plans identify the potential use of treated and/or blended oil and gas produced water as a potential source of new imported water that would increase available supplies for agricultural irrigation purposes and reduce potential groundwater demand over time. See SREIR (October 2020), Vol. 1, at 4.17-4.

Consequently, the SREIR accurately determined that none of the GSPs or Management Area plans provided new information indicating that the Project’s water supply and other SGMA-related impacts, including water quality, would be greater in magnitude or scope than previously considered. The GSPs and Management Area plans provide new information indicating that the importation of treated produced water from oil and gas operations could increase available water supplies and facilitate SGMA implementation. See SREIR (October 2020), Vol. 1, at 4.17-4. The incorporation and consideration of the new information discussed in the Slip Opinion supports the assessment of water supply impacts at a Project Area and Project Subarea level while also providing water supply and demand information developed for SGMA planning areas identified by the water districts and water management entities with the authority to implement the SGMA within the Project Area.

0008-18

The comment states that the SREIR (August 2020) fails to account for “a larger paradigm shift” towards “new baseline conditions created by the 2012-2014 drought,” as well as expert warnings of future, more intense droughts in California due to climate change.

The SREIR provides updated information concerning Project Area hydrology, including the most recent drought, and subsequent higher rainfall years based on the 2020 Annual Report prepared by the GSAs within the Project Area in accordance with SGMA requirements. The Annual Report shows that groundwater in storage over the four-year period from water year 2016 to water year 2019 in the Kern County subbasin increased by a total of 708,231 acre-feet, or by an average of 177,058 acre-feet per year, in response to higher than normal average rainfall. In contrast, groundwater in storage declined by an average of -277,114 acre-feet per year from water year 1995 to water year 2014, which includes the most recent drought period.

The SREIR further discusses the large natural variability of Project Area and California climate, including periods in which historically unprecedented periods of extreme drought and flooding occurred in the 19th century, well before human greenhouse gas emissions could have significantly affected global climate conditions. The SREIR summarizes 2020 drought conditions for California based on drought monitoring by state and federal agencies, which indicate that 2020 is drier than usual. See SREIR (August 2020), Vol. 1, at 4.9-15–16. This information was updated in the SREIR (October 2020) to include drought monitor estimates through October 2020. State and Project Area weather conditions in 2020 are being affected by a periodic upwelling of cold water in the west pacific equatorial zone, which is commonly called a “La Niña” event. La Niña conditions are known to reduce precipitation in the western U.S., including California and the Project Area. See E. Becker, October 2020 La Niña update, NOAA, Oct, 8, 2020, <https://www.climate.gov/news-features/blogs/enso/october-2020-la-ni%C3%B1a-update>. The SREIR (October 2020) also provides precipitation trend information for 1895–2019 compiled by the National Oceanic and Atmospheric Administration that shows no evidence of significant long-term change. See SREIR (October 2020), Vol. 1, at 4.9-23–24 and Figure 4.9-FF: NOAA Monthly Precipitation and Trend, California 1895–2020. The SREIR (October 2020) discusses the possibility that climate change may increase drought risks, possibly to the extent of paleoclimate period megadrought events, but also considers research predicting that climate change could increase annual precipitation in the California and the Project Area. See SREIR (October 2020), Vol. 1, at 4.9-27.

The SREIR considers how climate change could affect potential future water supply and demand conditions in the Project Area with reference to the 50-year planning and implementation horizon projections developed for the Kern County subbasin, as required by the SGMA. These projections incorporate several different water supply, precipitation, and climate change assumptions, including an assumed 20 percent supply reduction in the baseline scenario, and additional average annual reductions of 2 to 6 percent in the 2030 and 2070 climate change scenarios. See SREIR (August 2020), Vol. 1, 4.17-29–39. The most comprehensive analysis of climate science in the U.S. is the National Climate Assessment prepared by the U.S. Global Change Research Group based on scientific research and analysis from multiple federal agencies. The most recent science summary is the fourth National Climate Assessment report published in 2017. See U.S. Global Change Research Group, Climate Science Special Report: Fourth National Climate Assessment, Volume I, at https://science2017.globalchange.gov/downloads/CSSR2017_FullReport.pdf. This report identified multiple problems and uncertainties affecting the attribution of drought to climate change and concluded that “there has not yet been a formal identification of a human influence on past changes in United States meteorological drought through the analysis of precipitation trends.” See fourth National Climate Assessment report at 236. The report further concluded that “drought statistics over the entire CONUS have declined” and that “there is no detectable change in meteorological drought at the global scale.” See fourth National Climate Assessment report at 236. The SREIR contains a thorough and accurate discussion of historical and potential future hydrological conditions, including drought, that could affect water supply and demand in the Project Area. The analysis accurately reflects the scientific uncertainties concerning potential precipitation trends that could result from increased temperatures due to climate change, including published studies indicating that reduced or greater average rainfall could occur. The SREIR considers projections of reduced water supplies related to climate change prepared in accordance with the SGMA and extending to 2070.

The possibility that drought conditions may increase wildfire risks is not relevant to the SREIR analysis based on the best available scientific evidence, including the NCA4. The 2015 FEIR provides a thorough analysis of wildfire risks, and the SREIR is not required to modify this analysis. Please see GR-1 – Beyond the Scope of the SREIR, and SREIR (October 2020), Vol. 3, Section 4.14, Public Services.

0008-19

The comment summarizes the Court’s conclusion in the appellate litigation regarding the 2015 FEIR and states that Project activities are likely to cause adverse noise impacts. The Court’s opinion “conclude[d] the County’s exclusive reliance on a single cumulative DNL [day-night average level] metric for determining the significance of the project’s noise impacts and the absence of analysis, supported by substantial evidence, for concluding the magnitude of the increase in ambient noise is irrelevant to the significance of the noise impact, does not comply with CEQA.” Slip Opinion, at p. 113–114. For a full discussion of the Court’s conclusion regarding the noise analysis in the 2015 FEIR, please see the Slip Opinion, at p. 98-114. The comment also summarizes the findings from the Environmental Noise Assessment.

The SREIR (August 2020) discusses the Environmental Noise Assessment conducted as part of the 2015 FEIR in which noise measurements were taken at 18 different locations distributed throughout the Project Area that are representative of the varying noise conditions in current or likely future areas of oil and gas production and exploration over the life of the Project. The monitoring was conducted using unattended automated equipment that measured ambient noise levels continuously for a minimum period of 24 hours at each site. Noise measurement data were described in terms of DNL, which represents the time-weighted energy average noise level for a 24-hour day, with a 10-decibel (dB) penalty added to noise occurring during nighttime hours. Most jurisdictions within Kern County and the Bureau of Land Management describe noise exposure

in DNL. DNL has been endorsed as an appropriate measure because it not only accounts for noise levels throughout a 24-hour period but adds 10 dB to nighttime (10 p.m. to 7 a.m.) noise levels. See SREIR (October 2020), Appendix E. The 10-dB penalty applied during the nighttime hour accounts for increased sensitivity to noise exposure occurring during nighttime hours, and therefore addresses the potential for sleep disturbance. As described in the SREIR (August 2020), the average DNL measured throughout the Project Area was 54.7 dB. The lowest measured DNL of 44.8 dB was at Site 12, which was located in a rural area, and the highest measured DNL of 67.8 was at Site 3, which was located in the McKittrick community and was influenced by traffic noise, voices from commercial activity, and activities from residential land uses. There is an approximately 23 dB range of ambient noise levels throughout the Project Area.

The comment also summarizes the contour calculated for various oil and gas activities. The SREIR (August 2020) provides contours for construction activities at the 50, 55, 60, and 65 dB contours in Table 4.12-8. The SREIR (October 2020) updated this analysis with contours at the 49 dB level in Table 4.12-12A. The SREIR (August 2020) similarly provided contours for diesel- and electric-powered well production at the 50, 55, 60, and 65 dB contours in Table 4.12-13. The SREIR (October 2020) updated this analysis with contours at the 49 dB level in Table 4.12-14A. The SREIR contains a thorough and appropriate discussion of existing noise conditions and the Project's likely noise effects.

0008-20

The comment summarizes the SREIR (August 2020) analysis of incremental noise increases from construction activities.

The SREIR (August 2020) analyzes Project noise effects against an absolute noise threshold of 65 dB DNL. This is based on the Kern County General Plan exterior noise level limit of 65 dB DNL for defined sensitive receptors. Because of the unique nature of oil and gas construction activities, the SREIR (August 2020) also analyzes the Project's noise effects against a two-pronged incremental noise threshold:

- (1) Where ambient noise is less than 65 dB, Project activities may increase the ambient noise by no more than 5 dB; and
- (2) Where ambient noise is at or above 65 dB, Project activities may increase the ambient noise by no more than 1 dB.

The SREIR (October 2020) clarified that because the average ambient noise in the Project Area is 54.7 dB DNL, it is appropriate to assess the noise effects of the Project against the 5 dB increase standard, except where ambient noise is already in excess of the County's absolute noise threshold. See SREIR (October 2020), Vol 1., at 4.12–26. This 5 dB incremental standard has been endorsed by the courts. See *Mission Bay Alliance v. Office of Community Investment & Infrastructure* (2016) 6 Cal.App.5th 160, 193; Slip Opinion, at p. 110-11. It is also consistent with the Metropolitan Bakersfield General Plan, which applies a 5 dB threshold when the ambient noise is less than 60 dB, as in the majority of the Project Area. Less than 8 percent of the Project Area is within the area covered by Metropolitan Bakersfield General Plan. An increase of 5 dB is also the point at which a change in ambient sound becomes readily perceptible, while smaller changes are barely perceptible. Together, the absolute and incremental noise thresholds are referred to as the Noise Standard.

The SREIR (August 2020) disclosed in Table 4.12-12 the varying Project noise levels that would meet these standards based on the ambient noise levels measures as part of the Environmental Noise Assessment. However, the SREIR (August 2020) concluded that "due to varying ambient noise levels across the Project Area, it is impossible to ensure a predictable increase in ambient noise levels using feasible mitigation measures. Even with all feasible mitigation measures, it is impossible to eliminate all construction noise; thus, temporary noise impacts are significant and unavoidable." See SREIR (August 2020) at 4.12-30. The SREIR (October 2020) updated this analysis to assess the effects of Project construction noise against the lowest measured ambient noise from the Environmental Noise Assessment. At Site 12, the ambient noise was measured at 44.8 dB. Applying the allowable 5 dB increase resulted in a conservative incremental noise limit of 49 dB. The SREIR (October 2020) calculated the construction noise contours for this 49 dB limit. Because this limit is based on the lowest measured ambient level in the Project Area, if the nearest sensitive receptor is located outside of these contours, it will not experience an ambient noise increase above 5 dB. MM 4.12-1 was updated to reflect this new 49 dB contour and to require an Acoustic Noise Reduction Report based on site-specific measurements to achieve the Noise Standard detailed in the SREIR. See SREIR (October 2020), Vol. 1, at 4.12-40–41. Noise reduction measures include placement of a temporary sound attenuation wall; construction of a temporary berm; specific orientation of the drilling equipment on the well site and modification of the equipment to reduce noise impacts; implementation of detailed sound reduction technology or practices to reduce the noise impact at the sensitive receptor's property line; or written confirmation from the occupants of the sensitive receptor of their voluntary, temporary relocation or use restrictions during a defined construction period. See SREIR (October 2020), Vol. 1, at 4.12-34. While any applicant must meet the Noise Standard to obtain a permit, there is no satisfactory means to measure the subjective effect of noise on every individual. Even with mitigation, temporary noise impacts are significant and unavoidable.

0008-21

The comment summarizes the SREIR (August 2020) analysis of incremental noise increases from operations activities.

The SREIR uses an absolute noise limit of 65 dB and a two-pronged incremental noise standard. See Response to Comment 0008-20. The SREIR (August 2020) disclosed the varying Project noise levels that would meet these standards based on the ambient noise levels measures as part of the Environmental Noise Assessment and explained that in the loudest of the study locations, depending on the specific activity, operation activities could be sited from 80 to 210 feet away without creating a significant effect and that in the quietest of the study locations, these distances may more than double to 180 to 580 feet. The SREIR (October 2020) updated this analysis to assess the effects of Project operations noise against the lowest measured ambient noise from the Environmental Noise Assessment. See SREIR (October 2020), Vol. 1, at 4.12–38. At Site 12, the ambient noise was measured at 44.8 dB. Applying the allowable 5 dB increase resulted in a conservative incremental noise limit of 49 dB. The SREIR (October 2020) calculated the operations noise contours for this 49 dB limit. Because this limit is based on the lowest measured ambient level in the Project Area, if the nearest sensitive receptor is located outside of these contours, it will not experience an ambient noise increase above 5 dB. MM 4.12-2 was updated to reflect this new 49 dB contour and to require an Acoustic Noise Reduction Report based on site-specific measurements to achieve the Noise Standard detailed in the SREIR. See SREIR (October 2020), Vol. 1, at 4.12-40–41. MM 4.12-2 maintains the 210-foot setback derived from the 65 dB contour for diesel-powered production, which is applicable to all new wells. While the analysis in the SREIR supports a 210-foot setback, in response to community concerns, the SREIR (October 2020) further includes in MM 4.12-2 a 300-foot setback from private and public schools.

0008-22

The comment states that the SREIR is flawed due to a failure to require a site-specific evaluation of ambient noise levels.

The SREIR (August 2020) requires site-specific analysis of ambient noise levels where the applicant was unable to achieve the contours associated with the 65 dB contour for construction activities. The SREIR (October 2020) has been updated to require a site-specific analysis of ambient noise levels and an Acoustic Noise Reduction Report where the applicant cannot achieve the construction and operational trigger distances associated with the 49 dB noise contour. The 49 dB noise contour is based on the allowable 5 dB increase over the lowest measured ambient noise level measured in the Environmental Noise Assessment (44.8 dB at Site 12). Because this is based on the lowest measured ambient noise level, sensitive receptors located outside of the 49 dB contour distances should not experience a greater than 5 dB increase. Where these trigger distances cannot be achieved, MM 4.12-1 and MM 4.12-2 require an Acoustic Noise Reduction Report based on site-specific measurements to achieve the Noise Standard detailed in the SREIR. Noise reduction measures include placement of sound attenuation walls; construction of berms; specific orientation of the drilling equipment on the well site and modification of the equipment to reduce noise impacts; implementation of detailed sound reduction technology or practices to reduce the noise impact at the sensitive receptor's property line; or written confirmation from the occupants of the sensitive receptor of their voluntary, temporary relocation or use restrictions during a defined construction period. See SREIR (October 2020), Vol. 1, at 4.12-34. The applicant's compliance with the Noise Standard is ensured through the monitoring provisions in MM 4.12-1 requiring measurements at 24 hours and every 14 days after commencement of activities. See SREIR (October 2020), Vol. 1, at 4.12-53.

Additionally, compliance can be ensured through the County's enforcement powers under Kern County Zoning Code section 19.102.020, which allows any permit to be revoked by the County where any term or condition of the permit has not been complied with. See SREIR (October 2020), Vol. 5, at 7-168–172 (Enforcement of Mitigation Measures and Ordinance). The comment suggests an independent review team to evaluate noise levels and attenuation. A review would place untenable administrative strain on County resources, where thousands of permit applications would require processing. This resource strain would be contrary to the stated objectives of the Project. The Ordinance has been updated to expand the oversight and enforcement role of the County. Many new procedural and substantive requirements will be applicable to Project activities, including those identified as mitigation measures in the SREIR. The Board of Supervisors directed that this Ordinance update process be procedurally structured to avoid imposing excessive administrative burdens, while ensuring effective implementation and enforceability. The Court of Appeal "conclude[d] streamlining a permitting process is a legally appropriate objective." Slip Opinion, at p. 121. Introducing a discretionary independent review process would be contrary to the stated objectives of the Project and, in light of the County's enforcement authority, would not result in any greater compliance. The comment suggests that the SREIR should present a process to evaluate and respond to noise complaints. Failure to achieve the Noise Standard is a violation of the permit requirements and the provisions of the Ordinance, and is subject to County enforcement.

0008-23

The comment states that MM 4.12-1 does not mitigate effects above the incremental noise standard, but below the absolute standard, and recommends the inclusion of a site-specific analysis.

Please see Response to Comment 0008-20. The SREIR (October 2020) has incorporated the 49 dB contours for construction activities into MM 4.12-1 to ensure that where the triggering distances can be achieved, no sensitive receptor will experience a greater than 5 dB increase over ambient levels. Where these distances cannot be achieved, the applicant must prepare an Acoustic Noise Reduction Report based on site-specific measurements to achieve the Noise Standard detailed in the SREIR.

0008-24

The comment states that MM 4.12-2 does not mitigate effects above the incremental noise standard, but below the absolute standard, and recommends the inclusion of a site-specific analysis.

Please see Response to Comment 0008-21. The SREIR (October 2020) has incorporated the 49 dB contours for operational activities into MM 4.12-2 to ensure that where the triggering distances can be achieved, no sensitive receptor will experience a greater than 5 dB increase over ambient levels. Where these distances cannot be achieved, the applicant must prepare an Acoustic Noise Reduction Report based on site-specific measurements to achieve the Noise Standard detailed in the SREIR. Please see Response to Comment 0008-52.

0008-25

The comment states that the SREIR fails to analyze or mitigate single-event noise, sleep disturbance, and effects on interior noise levels, citing the Salter (2020) report attached to the comment and cited fully in Response to Comment 0008-1.

The comment is incorrect. The 2015 FEIR explained that, "The County reviewed the Salter Report and determined that it does not constitute substantial evidence of noise impacts not already addressed in the DEIR." See SREIR (October 2020), Vol. 5, at 7-279. Responses to the reports submitted by Charles M. Salter Associates on the 2015 FEIR can be found in SREIR (October 2020), Vol. 5 and in Addendum Attachment A to the November 9, 2015 Staff Report to the Kern County Board of Supervisors.

Single event noise is measured by the sound exposure level (SEL), a noise metric commonly used to describe intermittent or isolated noise events such as an aircraft overflight or train pass-by, and should not be applied when describing long-term exposure over a 24-hour period of time. There are no noise standards that utilize the SEL metric. Kern County establishes noise level criteria in terms of the DNL metric. The DNL is the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m. to 7:00 a.m.). The 10 dB penalty applied during the nighttime hours accounts for increased sensitivity to noise exposure occurring during nighttime hours, and therefore does address the potential for sleep disturbance. The SREIR (October 2020) updated this analysis to explain that certain federal agencies use SEL and reference levels only to calculate the equivalent DNL for residential properties for activities such as a train pass-by or aircraft overflight. See SREIR (October 2020), Vol. 2, Appendix E. The SREIR (October 2020) also confirms that by controlling Project noise outdoors, indoor noise increases are also moderated because typical construction complying with building code standards can be expected to provide an outdoor-to-indoor noise level reduction of at least 20 dB. By complying with the Noise Standards, sensitive receptors should not experience a significant interior increase. The SREIR contains a thorough and appropriate discussion of the Project's potential effect on nighttime noise, sleep disturbance, and interior noise levels.

0008-26

The comment states that additional feasible mitigation measures must be adopted by the County to address the significant and unavoidable noise impacts of the Project.

The SREIR (August 2020) determined that noise impacts were significant and unavoidable because, while setbacks and noise attenuation strategies can reduce the effect of Project construction and operation activities, noise sensitivities vary based on individual tolerances and, depending on individual sensitivity, any incremental increase of that ambient noise level could be considered intrusive by the homeowner, church member, or other user of the sensitive receptor. The SREIR (October 2020) updated the applicable mitigation measures to require additional mitigation. See Responses to Comments 0008-20 to 0008-22. However, the same concerns regarding varying individual tolerances and anomalous ambient conditions remain. There is no satisfactory means to measure the subjective effect of noise on every individual. Even with mitigation, noise impacts are significant and unavoidable.

The comment first recites a history of the multi-well Health Risk Assessment (HRA), which does not address the adequacy of the multi-well HRA.

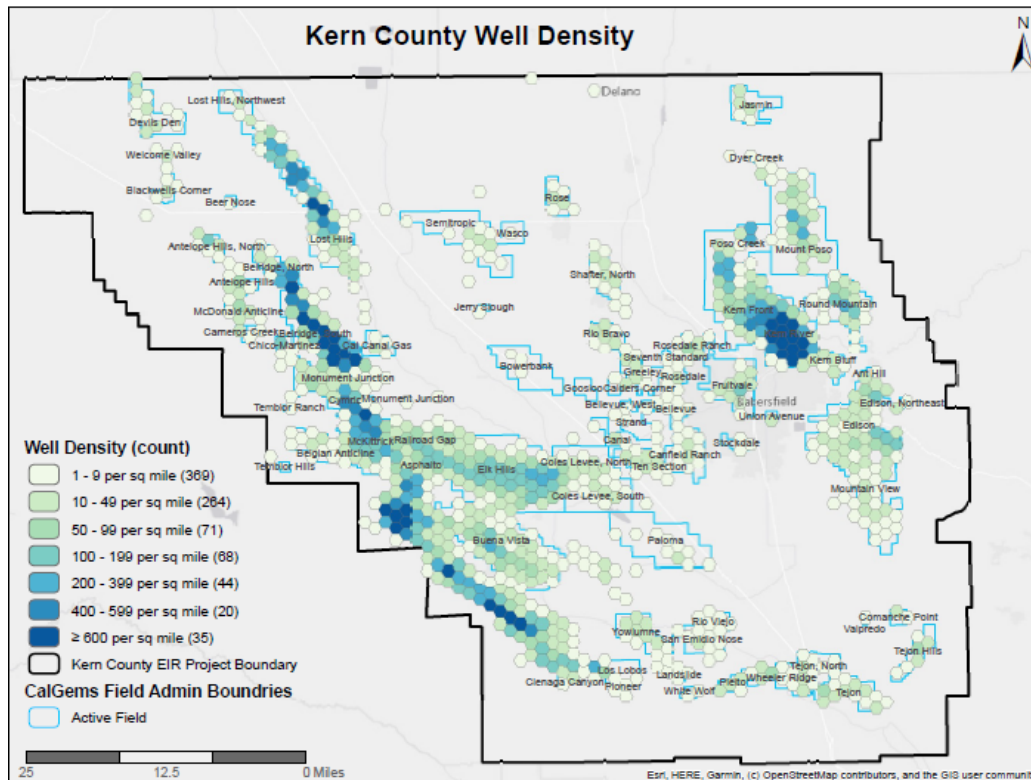
No multi-well HRA had been prepared at the time that the 2015 FEIR was released, and no multi-well HRA was circulated with the 2015 DEIR. The multi-well HRA was completed in response to a comment by the Division of Oil, Gas, and Geothermal Resources (now California Geologic Energy Management Division) but was not completed before Chapter 7 of the 2015 FEIR, "Responses to Comments," was published. References to the multi-well HRA in Chapter 7 of the 2015 FEIR were drafting errors, which had no bearing on the adequacy of the multi-well HRA. See SREIR (October 2020), Vol. 7, at 12-242–243. The multi-well HRA was released to the public on November 2, 2015, and Chapter 12 of the 2015 FEIR explained its results. Both documents were presented to the Board of Supervisors before it held its final hearing on the Project. Comments were also submitted on the multi-well HRA in 2015, including those by Dr. Fox (cited in this comment), and those comments were responded to in writing before the Board took final action on the Project in 2015.

The Court of Appeal held that the multi-well HRA "must be included in any revised EIR recirculated for public comments before that revised EIR is presented to the Board for certification." Slip Opinion, at p. 132. The Court of Appeal's decision did not say that there were deficiencies in the multi-well HRA that were required to be corrected in the SREIR. Rather, the Court stated that the failure to circulate the multi-well HRA led to a lack of meaningful review by the public. See Slip Opinion, at p. 131. The Court's judgment states that "because the Multi-Well Health Risk Assessment was not included in the EIR and was not released to the public until five business days before the public hearing on the Project, the ability of the public to review and comment upon it was limited. The Multi-Well Health Risk Assessment must be included in any revised EIR recirculated for public comment before that revised EIR is presented to the Board for certification." The Court did not require any modifications to the underlying analysis in the multi-well HRA conducted in 2015. The Court's reference to the multi-well HRA as "post hoc justification" was made to explain how the misstatements and inferences reasonably drawn from them heightened the need for public review of the multi-well HRA, not that any analysis in the multi-well HRA was inadequate or invalid. Slip Opinion, at p. 132.

The comment next states that issues with the multi-well HRA identified by Dr. Fox in her 2015 comment letter remain, and are addressed in a supplemental report on the recirculated multi-well HRA attached to this comment (2020 Fox Report). These include failure to analyze impacts from multiple wells at a density that actually occurs in Kern County, failure to account for increased well densities in areas where hydraulic fracturing occurs, and additional flaws in modeling and conclusions.

The comment is correct that the multi-well HRA in the SREIR is the same as the multi-well HRA in the 2015 FEIR. However, the comment is incorrect that the 2015 FEIR did not respond to Dr. Fox's 2015 comment letter. Dr. Fox's 2015 comments were addressed in detail in Chapter 7 of the 2015 FEIR, "Responses to Comments." Second, the SREIR (October 2020) has been revised to include a technical report from Environmental Compliance Solutions, Inc., the consultant who prepared the multi-well HRA, which responds to Dr. Fox's extensive comments from 2015 on the multi-well HRA and responds to the 2020 Fox Report. See SREIR (October 2020) Vol. 2, Appendix B-1 (Technical Memorandum on HRAs). The air quality chapter of the SREIR (October 2020) has also been updated to further supplement the discussion of the assumptions, modeling, and conclusions of the multi-well HRA and explains why no modification to the multi-well HRA from 2015 was required. See SREIR (October 2020), Vol. 1, at 4.3-152–155. For specific responses to the 2020 Fox Report, please see Responses to Comments 0008-58 through 0008-62.

As to the well density assumed in the multi-well HRA, the comment states that actual well densities in Kern County range from 3 to 633 wells per square mile and that well density is higher in areas where hydraulic fracturing occurs. The comment asserts that the multi-well HRA assumes well densities near the lowest end of the actual range and is not a realistic assumption about actual well density in the County. The density of wells analyzed in the multi-well HRA was approximately 13 wells per square mile. The density of wells in Kern County ranges across the County. As shown in the graphic below, the majority of the County has well density in the range of 1 to 99 wells per square mile. A much smaller subset of areas have well density greater than 400 wells per square mile. The suggestion by the comment and Dr. Fox that well density of upwards of 600 wells per square mile is common is not supported, nor would an assumption of 633 wells per square mile be a reasonable one based on the graphic below.



Note: All well shapefiles and field boundary shapefiles sourced from:
<https://www.conservation.ca.gov/calgem/maps/Pages/GISMapping2.aspx>

The risk driver for health impacts from Project activities is drilling and not ongoing production operations. See SREIR (October 2020), Vol. 2, Appendix B-1 at 3-4; SREIR (October 2020), Vol. 1, at 4.3-154. For purposes of the multi-well HRA, the relevant inquiry is not the overall well density in any area in the County but (1) the density of wells being drilled proximate in time to each other, and (2) the density of these wells near a particular sensitive receptor such that the sensitive receptor will be exposed to the risks from drilling multiple wells over time. Though the comment states that well density in Kern County is much higher than assumed in the multi-well HRA, the multi-well HRA does not assume well density for operating wells, but for wells being drilled at the same time or in close temporal succession. The comment does not state that there are particular sensitive receptors that are near to 633 wells in 1 square mile all being drilled in a short timeframe, and many of the areas of the County with higher well density are less populated. The overall well density in Kern County is not the appropriate metric by which to make assumptions for the multi-well HRA modeling when the health risk is predominantly related to drilling. The multi-well HRA assumes that forty-eight 13,000-foot wells would be drilled not only in close proximity to a single sensitive receptor but also close in time to each other, in order that they would impact one individual over their lifetime living at the same location. See SREIR (October 2020), Vol. 1, at 4.3-152–155.

Given the time it takes to drill a 13,000-foot well, the likelihood of such deep wells being drilled so close together, and the number of drill rigs currently available in Kern County, the assumptions underlying the multi-well HRA are extremely conservative. Historically, there have been four to twelve drill rigs in Kern County at any given time between 2015 and 2020, and since April 2020 there have only been three to four drill rigs operating in Kern County; this number is unlikely to increase in the near future given current and projected oil and gas production activities. See SREIR (October 2020), Vol. 1, at 4.3-152; SREIR (October 2020), Vol. 2, Appendix B-1 at 3. The multi-well HRA scenario would require all eight of the theoretical average number of rigs present in the County from 2015 to 2020 to be drilling in the same place for an entire year, stopping drilling throughout the rest of the County. Utilizing all four of the drill rigs currently operating in the County, it would take two years to drill the forty-eight 13,000-foot wells, and no other drilling in the County would be able to occur during that time. Only 3 percent of all wells in Kern County are drilled to depths of 10,000 feet or greater. These assumptions are only two of the many conservative assumptions utilized in the multi-well HRA. See SREIR (October 2020), Vol. 2, Appendix B-1, Technical Memorandum on HRAs, for a further explanation of the conservative assumptions underpinning the multi-well HRA analysis.

The multi-HRA scenario remains a conservative and realistic assumption of Project activities. To drill the 633 wells in one location, as the comment alleges is reasonably foreseeable, would require eight rigs drilling continuously in one location for 49 years. With the fewer rigs now present in Kern County, this would take 98 years, beyond the longest time period that even the most conservative HRAs assume the same person is located at one sensitive receptor. Neither of these scenarios is

reasonably foreseeable because it is highly unlikely that all available drill rigs would be operating for such a long period of time in one small part of the County.

The comment next states that the SREIR fails to include any mitigation or conditions necessary to reduce or avoid significant health risks from exposure to multiple wells and fails to analyze chronic or acute impacts of cumulative well drilling. The SREIR contains a mitigation measure (MM 4.3-5) that reduces impacts of health risk from Project activities to below the San Joaquin Valley Air Pollution Control Board (SJVAPCD) thresholds. See SREIR (October 2020), Vol. 1, at 4.3-158–159. The analysis in the SREIR and the multi-well HRA demonstrates that this mitigation measure would adequately protect the public from the potential health risks due to exposure from multiple wells. See SREIR (October 2020), Vol. 1, at 4.3-152–155; Vol. 2, Appendix B-1. The multi-well HRA did not consider chronic or acute impacts nor multi-pathway exposure as approximately 99.9 percent of the risk associated with the multi-well HRA scenario comes from diesel particulate matter and thus inhalation is the dominate pathway for exposure. See SREIR (October 2020), Vol. 1, at 4.3-154.

As shown by the single-well HRA analyses, even with the inclusion of extensive production equipment, including engines, a cogeneration facility, several tanks, a flare, and additional equipment, both the acute and chronic (non-cancer) impacts in the “single well with production equipment” scenarios are well below the regulatory threshold of 1. See SREIR (October 2020), Vol. 1, at 4.3-154; see also SREIR (October 2020), Vol. 2, Appendix B-1 at 5. The comment notes that the SREIR states the multi-well HRA “was completed to evaluate potential cumulative health impacts associated with multiple well drilling operations occurring simultaneously.” SREIR (August 2020), Vol. 1, at 4.3-131. The comment states that this is a reversal of the position taken in the Court of Appeal, that the multi-well HRA was not a cumulative impact analysis as defined in CEQA. “Cumulative” in CEQA parlance means:

two or more individual effects, which, when considered together, are considerable or which compound or increase other environmental impacts. (a) The individual effects may be changes resulting from a single project or a number of separate projects. (b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. CEQA Guidelines § 15355.

The multi-well HRA assesses the individual effects from multiple activities under a single project over time and thus may fall into subsection (a) of the definition of cumulative impacts. The statement in the Opposition brief may have been intended to differentiate the multi-well HRA from a cumulative impact analysis under CEQA Guidelines § 15355(b), which considers the effects of the Project when added to those of other projects. As all of the wells in the multi-well HRA would be part of the Project, it would not be a cumulative impact analysis under CEQA Guidelines § 15355(b).

0008-28

The comment references a memorandum by Dr. H. Andy Gray on the multi-well HRA submitted as an exhibit to the comments on the SREIR prepared by Earthjustice and presented in this chapter as Comment Letter 0009. This memorandum is addressed in Responses to Comments 0009-153 through 0009-159.

0008-29

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response.

Please see Responses to Comments 0008-27 and 0008-28.

0008-30

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. Please see Responses to Comments 0008-1 through 0008-29.

0008-31

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0008-32

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. This comment introduces other comments on the feasibility of well clustering as mitigation for the impact of agricultural land conversion. The comment is introductory and does not require a detailed response.

Please see Responses to Comments 0008-13, 0008-14, and 0008-33 through 0008-40 regarding the support for the conclusion that a mitigation measure requiring clustering of wells on agricultural land is infeasible.

0008-33

The comment states that a mitigation measure for agricultural land conversion that would require well clustering, necessitating horizontal drilling to reach dispersed mineral resources from clustered wells, would be feasible because horizontal and directional drilling “have become the norm in Kern County over the past decade.” The comment illustrates the trend of wells drilled in Kern County from 2000 to 2020, showing an overall reduction in vertical drilling and increase in directional drilling, but only a small increase in horizontal drilling. In 2020, 7 percent of wells in the dataset were drilled horizontally, 76 percent were drilled directionally, and 17 percent were drilled vertically. The comment proposes that operators should be required to make the case for individual exemptions from a clustering mitigation requirement in the “few cases” where directional and horizontal drilling “may not be feasible” geologically.

Please see Response to Comment 0008-13. For purposes of determining the feasibility of clustering mitigation, directional drilling that is only slightly deviated from vertical must be distinguished from horizontal drilling. Such directional wells are properly considered as distinct from the laterally deviating horizontal wells that can reach more distant resources. The low prevalence of horizontal wells—7 percent in 2020, according to this comment—does not support the comment’s assertion that well clustering would be a feasible mitigation measure with a few case-by-case exceptions.

0008-34

The comment states that multi-well pad drilling has become the standard in many oil and gas jurisdictions in the U.S. and Canada.

Please see Response to Comment 0008-13. In those regions, including the Permian Basin of west Texas and southwest New Mexico, the Bakken Play of North Dakota, and the Niobrara Play of Colorado, geological formations are homogeneous and producible reservoirs are laid out in flat and long intervals. There are few operating EOR projects in these areas.

0008-35

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment states that multi-well pad drilling allows the use of common infrastructure such as access roads and results in cost savings. The comment also states that there is no evidence of increased injuries or habitat disruption from clustering wells.

Please see Response to Comment 0008-13. Regarding the beneficial effects of well clustering in areas where it may be geologically feasible, the discussion was clarified in the SREIR (October 2020), Vol. 1, at 4.2-36, to state that:

A proposed mitigation measure that requires clustering can be expected to reduce the footprint of consolidated multi-well pads using common access roads and infrastructure, compared to the sum of the footprints of dispersed well pads with separate access roads and infrastructure. In addition to impacting fewer acres of agricultural land, clustering could also benefit wildlife species that co-exist with agricultural uses. Use of multi-well pads and common infrastructure can reduce construction time and cost.

Most future oil and gas production in Kern County is expected to occur in established oil fields that are many decades old, are already highly disturbed, and have well-developed infrastructure and access roads already in place. For efficiency, operators utilize existing access roads when available to connect to new pads, thus reducing surface disturbance. Single well pads in mature fields rarely require new roads with accompanying surface disturbance, as operations utilize existing roads already connected to the sites. See Velasco (2020). Overlapping drilling, completion, and facility operations requires simultaneous operation of equipment, including drilling rigs, completion rigs, construction cranes, and heavy trucks and loaders, as well as increased personnel traffic, within a confined area on and around multi-well pads. Velasco (2020). Drilling laterally from a multi-well pad in a location with highly faulted geology under tectonic stress can also expose operations to greater risk. Penetrating unstable formations at the incorrect angle can lead to borehole breakout with a potential unplanned

sidetrack and/or loss of the well. The higher density of activity may reduce the footprint and also increase the risk and potential magnitude of incidents, resulting in greater potential disturbance to lands and habitat, as compared to dispersed activities at single well pads. The discussion of these issues in the SREIR (October 2020) Vol. 1, at 4.2-36–38, is supported by information provided in Velasco (2020) by an oilfield professional based on over 20 years of personal experience in domestic and international drilling projects, including 10 years working on drilling projects in California characterized by complex geological conditions.

0008-36

The comment states that multi-well pad drilling is feasible and occurs in parts of Kern County, with an illustration of multi-well pads on agricultural land in the Wasco area. Please see Response to Comment 0008-13. In some portions of Kern County, minerals are deposited in relatively homogeneous horizontal layers over a large area, so that the drill bore can gradually be deviated laterally to access the formation without hitting traps or targeting small pockets of oil. In those areas, horizontal drilling from larger clustered well pads is routinely utilized by agreement among surface and mineral owners. Locations with this type of geology include the Wasco area, as illustrated in the comment.

0008-37

The comment claims that well clustering will reduce emissions and land impacts. Although drilling horizontal and/or directional wells may require a few extra days, the comment asserts that constructing multiple single-well pads would likely consume more time and disturb more land for construction of access roads and other infrastructure. The comment also states that emissions from drilling a well are a small proportion of total emissions over a well's productive life.

Please see Responses to Comments 0008-13 and 0008-35. Regarding the benefits of well clustering where it may be geologically feasible, the SREIR (October 2020), Vol. 1, at 4.2-36, was revised from the August draft to state that: "A proposed mitigation measure that requires clustering can be expected to reduce the footprint of consolidated multi-well pads using common access roads and infrastructure, compared to the sum of the footprints of dispersed well pads with separate access roads and infrastructure." A mitigation measuring mandating the clustering of wells is reasonably expected to require horizontal drilling, which would require longer drilling periods to reach the mineral source than would be needed by a vertical well. There would be some reduction of emissions associated with constructing fewer access roads. However, most future oil and gas production in Kern County is expected to occur in established oil fields with access roads already in place, so the primary effect on emissions will be from incremental horizontal drilling.

Horizontal drilling requires a longer drilling path and duration to reach the target reservoir as compared to vertical well drilling. . Because current drilling equipment in California is not capable of making near-right turns from vertical initiation of the bore to a horizontal orientation, horizontal wells must be drilled in a more sweeping, arch shape, and thus wells must be deep enough to accommodate this gradual horizontal turn instead. This means that the total distance that must be drilled when drilling horizontally is larger than when drilling vertically and thus the drilling takes longer to accomplish. Longer drilling periods mean increased levels of construction-related emissions, while emissions from later phases of a well's productive life would be unchanged. The proportion of lifetime emissions attributed to post-drilling activities is not relevant to the difference between emissions from vertical and horizontal drilling. Horizontal drilling not only requires longer drilling times, which increase emissions, but also tends to require greater power. Operation of the larger, higher horsepower engines required for horizontal drilling results in higher emissions than vertical drilling for an equivalent distance. Moreover, the engines utilized in drilling operations come in discrete sizes. As a result, transitioning to the next larger size of engine in order to achieve a given increase in power may result in a disproportionate increase in emissions. Well pad preparation and construction emissions are negligible compared to emissions from drilling and primarily consist of particulate matter up to 10 microns in diameter (PM₁₀). Consolidating wells on a single pad rather than separate pads would have little effect on overall emissions and, in particular, would not reduce nitrogen oxide emissions. See Velasco (2020). While a well clustering mitigation requirement would have the benefit of impacting fewer acres of agricultural land, it is reasonably expected to contribute to the cumulative overall emissions of criteria pollutants for which the San Joaquin Valley air basin is in nonattainment.

0008-38

Based on data from the Office of the Kern County Assessor cited in Hughes (2020), the comment states that, in Kern County, "individual mineral tenures are quite large, many are 640 acres in area" and "[i]n most cases, it is unlikely that clustered well pads with directional and horizontal wells will be constrained by mineral tenure."

The comment is incorrect. The data from the Office of the County Assessor show only one producing mineral owner on each lease for property tax purposes. Most mineral rights in Kern County are owned by at least two or more mineral owners, and some tracts have hundreds of fractional owners. Many mineral leaseholds in Kern County are modest in size, limiting the quantity of resources that can be accessed by horizontal drilling across a single parcel. The complexities of fractional

ownership, as well as fractured geology, preclude simply drilling straight through from one end to the other of a series of parcels and interests that may appear under one owner's name as a common "mineral tenure" based on the tax rolls. It is likely that some mineral owners will be unable to secure all necessary rights to legally produce their minerals from other parcels, potentially exposing the County to liability for takings. Please see Response to Comment 0008-14, as well as Velasco (2020), and Mills (2020).

0008-39

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. Citing the Kern County Assessor's Office data, the comment objects to the statement in the SREIR (August 2020), Vol. 1, at 4.2-31, that "one legal lot of agricultural land could have dozens of distinct ownership subsurface leases across the property."

This statement was revised in the SREIR (October 2020), Vol. 1, at 4.2-34 to state that "one legal lot of agricultural land could have ~~dozens~~ multiple distinct ownership subsurface leases across the property" which is supported by Velasco (2020) and Mills (2020). Please see Responses to Comment 0008-14 and 0008-38 regarding the Assessor's Office data.

0008-40

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment summarizes and states a conclusion to the preceding comments and does not require a detailed response.

Please see SREIR (October 2020), Vol. 1, at 4.2-33–40 and Responses to Comments 0008-13, 0008-14, and 0008-32 through 0008-39.

0008-41

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. This comment introduces other comments on the adequacy of the SREIR (August 2020) noise analysis. The comment is introductory and does not require a detailed response.

0008-42

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment introduces other comments on the adequacy of the SREIR (August 2020) noise analysis.

The comment is introductory and does not require a detailed response. For a response regarding the effectiveness of mitigation generally, please see Responses to Comments 0008-20 through 0008-22. For a response regarding the triggering distances in MM 4.12-1, please see Response to Comment 0008-20. For a response regarding operational mitigation in MM 4.12-2, please see Response to Comment 0008-21. For a response regarding nighttime noise and sleep disturbance, please see Response to Comment 0008-25.

0008-43

The comment introduces other comments on the adequacy of the SREIR (August 2020) noise analysis, states that only the absolute component of the Noise Standard is applied comprehensively in the application process, and states that the operational mitigation in MM 4.12-2 fails to address the incremental component of the Noise Standard.

For a response regarding nighttime noise and sleep disturbance, please see Response to Comment 0008-25. Due to the unique nature of oil and gas operations, the SREIR (August 2020) not only applied the County's adopted 65 dB DNL threshold, but also developed an incremental noise threshold. The incremental threshold has two prongs. For a discussion of the 5 dB and 1 dB incremental thresholds, please see Response to Comment 0008-20. The SREIR (August 2020) required applicants to demonstrate compliance with both the absolute and incremental thresholds when the triggering distances in MM 4.12-1 could not be achieved. The triggering distances in the SREIR (August 2020) were based on the 65 dB contours for construction activities. The SREIR (October 2020) has updated the triggering distances in MM 4.12-1 to reflect the 49 dB contours for various construction activities. For a discussion of the adequacy of the 49 dB contour, please see Responses to Comments 0008-20 through 0008-22. The SREIR (October 2020) also revised MM 4.12-2 to reflect a parallel structure using the 49 dB contour while maintaining a fixed setback of 210 feet from dwellings and 300 feet from schools. For further discussion of the changes to MM 4.12-2, please see Response to Comment 0008-21.

0008-44

This comment introduces other comments on the adequacy of the SREIR (August 2020) noise analysis, states that the SREIR fails to comply with the Kern County noise element, states that the SREIR fails to require adequate follow-through in the application process, and states that the SREIR fails to identify a path for resolution in the event of noise violations or complaints.

The comment is incorrect. The Kern County Noise Element states two goals: (1) to “[e]nsure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained” and (2) to “[p]rotect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.” Kern County General Plan, Noise Element at 148. To achieve these goals, the General Plan adopted a policy and an implementation measure limiting exterior noise to 65 dB DNL. Kern County General Plan, Noise Element at 148-49. The SREIR (October 2020) requires compliance with the policy and implementation measure identified to achieve these goals. For a response to the adequacy of the SREIR (October 2020) noise mitigation measures, please see Responses to Comments 0008-20 to 0008-22. For a response regarding the oversight process, please see Response to Comment 0008-45. For a response regarding the resolution of noise violations and complaints, please see Response to Comment 0008-22.

0008-45

The comment states that adequate oversight and public presentation of noise information should be required, with reasonable requirements to evaluate noise at each site.

The SREIR (August 2020) contained a thorough and appropriate disclosure of the potential noise impacts from Project activities. The SREIR (August 2020) used the ambient measurements from the 18 different study locations to disclose the typical existing ambient noise conditions in the Project Area. The SREIR (August 2020) then disclosed the range of additional, Project-related noise that could occur without a significant impact based on the incremental standard. Based on the minimum and maximum measured ambient levels, Project-related noise could range from 48.8 to 63.8 dB at the sensitive receptor without resulting in a significant impact. See SREIR (October 2020), Vol. 1, at 4.12-31. The SREIR (August 2020) provided detailed noise contours for typical equipment used in construction and operation based on analyses from the Federal Highway Administration and on-the-ground measurements. An expert then calculated a composite noise level for each activity predicted to occur in the Project, including various types of drilling, large-scale exploration, well workover, well stimulation, well pad preparation, and production powered by either electricity or diesel. These composite noise levels disclose the distances required to achieve the requisite sound level at the sensitive receptor. The SREIR (October 2020) updated these contours to reflect the 49 dB contour to establish revised triggering distances in both MM 4.12-1 and MM 4.12-2. For a discussion of the adequacy of the 49 dB contour, please see Responses to Comments 8-20 to 8-22. Where these triggering distances cannot be met, additional site-specific measurements and attenuation measures are required. For a discussion of MM 4.12-1, please see Response to Comment 0008-20. For a discussion of MM 4.12-2, please see Response to Comment 0008-21. The SREIR (October 2020) therefore contains a thorough and appropriate discussion of noise information with reasonable requirements for the evaluation of noise impacts.

0008-46

The comment states that a site-specific screening should be required for noise impacts. The comment specifically recommends a 15-minute measurement during the daytime hours with a 60 dB trigger for additional mitigation.

MM 4.12-1 and MM 4.12-2 have been updated to incorporate triggering distances based on a 49 dB contour. The 49 dB contour is based on the lowest measured ambient in the Environmental Noise Assessment. For a discussion of the adequacy of the 49 dB contour, please see Responses to Comments 8-20 to 8-22. Where this triggering distance cannot be met, a site-specific Acoustic Noise Reduction Report must be prepared. This report requires 24-hour measurements in order to determine the DNL of the specific site, consistent with the noise standards from the Kern County General Plan. The Acoustic Noise Reduction Report must quantify reduction measures that will be implemented to reduce Project noise to the Noise Standard. For a discussion of the potential reduction measures, please see Response to Comment 0008-22. The SREIR (October 2020) therefore ensures that applicants will not exceed the County’s Noise Standard. The comment also states that there is wide variation among the 18 sites analyzed in the Environmental Noise Assessment, with only one site measured above 65 dB DNL, and due to the likelihood of a large number of sensitive receptors with low ambient conditions, additional site-specific screening is necessary. The comment’s premise is incorrect. While there is an approximately 23 dB range of ambient noise levels throughout the Project Area, the sites with the lowest measured ambient levels were located in rural areas where the only sources of noise were traffic, agricultural operations, oil operations, birds, and wind. See SREIR (October 2020), Vol. 5, Appendix V-1. The Environmental Noise Assessment tends to indicate that low ambient conditions are

associated with a smaller number of sensitive receptors. For further response regarding the Environmental Noise Assessment, please see Response to Comment 0008-19.

0008-47

The comment states that the applicants should be required to make a good-faith effort to identify and incorporate reasonable mitigation measures, that an independent review committee should be established to evaluate site applications, that an independent noise complaint process should be established, and that sanctions should be imposed for violations.

The SREIR (October 2020) requires the preparation of an Acoustic Noise Reduction Report documenting noise reduction measures to achieve the County's Noise Standard where the triggering distances in MM 4.12-1 and MM 4.12-2 cannot be achieved. Additionally, MM 4.12-1 requires periodic monitoring beginning 24 hours after commencement of construction activities to ensure that the noise reduction measures are effective. The comment suggests an independent review team to evaluate noise levels and attenuation. Such a review would place untenable administrative strain on County resources. The resource strain of processing thousands of permit applications would be contrary to the stated objectives of the Project. The Ordinance has been updated to expand the oversight and enforcement role of the County. Many new procedural and substantive requirements will be applicable to Project activities, including those identified as mitigation measures in the SREIR. The Board of Supervisors directed that this ordinance update process be procedurally structured to avoid imposing excessive administrative burdens, while assuring effective implementation and enforceability. The Court of Appeal "conclude[d] streamlining a permitting process is a legally appropriate objective." Slip Opinion, at p. 121. Introducing a discretionary independent review process would be contrary to the stated objectives of the Project and, in light of County enforcement authority, would not result in any greater compliance.

The comment suggests that a process be developed to evaluate and respond to noise complaints. There is currently a process in place for addressing noise violations. Failure to achieve the Noise Standard is a violation of the permit requirements and the provisions of the Ordinance and is subject to County enforcement. Violations of permits and the Zoning Code will be investigated and remedies enforced by the Planning and Natural Resources Department.

The comment also suggests sanctions or penalties for violations. Compliance can be ensured through County enforcement powers under Kern County Zoning Code § 19.102.020, which allows the County to revoke any permit where any term or condition of the permit has not been complied with. See also SREIR (October 2020), Vol. 5 at 7-168–172 (Enforcement of Mitigation Measures and Ordinance). Additionally, Kern County Code § 8.54.040 provides that any person who violates any provision of the County zoning regulations may be issued an administrative citation for each day such violation is allowed to continue. Since the Ordinance would require permit applicants to comply with each implementation standard and condition, any failure to maintain compliance would constitute a continuing administrative violation subject to penalty for each day the violation is allowed to continue. Administrative penalties for a violation of the County zoning regulations are assessed as a fine not to exceed \$250 for the first violation, \$500 for the second violation, and \$1,000 for each additional violation thereafter within one year from the date of the first violation. Any County public official may also petition the Board of Supervisors to increase the fine amount, which the Board may approve in its discretion. Failure to pay an administrative penalty is subject to a civil action initiated by the County to collect the unpaid fines with interest, as well as to seek reimbursement of the County's costs to enforce, investigate, establish, and collect such fines. Pursuant to Kern County Code § 19.114.060, any person who causes or permits a violation of any County zoning regulation commits a misdemeanor that, upon conviction, is punishable by a maximum fine of \$1,000 or by imprisonment for up to six months, or both. Each day the violation continues constitutes a separate offense. Accordingly, per the County Code, cumulative punishments may be stacked for each day a zoning violation is continued, a practice upheld by the courts in *People v. Djekich* (1991) 229 Cal.App.3d 1214, 1224. Since the Ordinance would require permit applicants to comply with each Implementation Standard and Condition, any failure to maintain compliance would constitute a continuing misdemeanor violation subject to criminal prosecution for each day such violation is allowed to continue. Penalties and sanctions are therefore already enforceable for developments that fail to meet the Noise Standard.

0008-48

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. This comment introduces other comments on the adequacy of the SREIR (August 2020) noise mitigation for construction noise impacts.

0008-49

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment states that MM 4.12-1 fails to ensure that

Project activities will meet the County's Noise Standard because it does not require mitigation where the 65 dB contour can be achieved.

The SREIR (October 2020) has updated MM 4.12-1 to include trigger distances based on the 49 dB contour level. The 49 dB contour level is based on the lowest measured ambient level in the Environmental Noise Assessment. For a response regarding the adequacy of the 49 dB contour, please see Responses to Comments 0008-20 to 0008-22.

0008-50

This comment recommends a screening test to determine if additional mitigation is needed for construction activities.

The SREIR (October 2020) has updated the triggering distances in MM 4.12-1 to reflect the 49 dB contour, which is based on the lowest measured ambient level in the Environmental Noise Assessment. Where this triggering distance cannot be achieved, the applicant must prepare an Acoustic Noise Reduction Report. This report requires 24-hour measurements in order to determine the DNL of the specific site, consistent with the noise standards from the Kern County General Plan. The Acoustic Noise Reduction Report must quantify reduction measures that will be implemented to reduce Project-related noise to the Noise Standard. For a discussion of the potential reduction measures, please see Response to Comment 0008-22. The SREIR (October 2020) ensures that applicants will not exceed the County's Noise Standard.

0008-51

The comment states that operational impacts are not mitigated to address the incremental prong of the County's Noise Standard. Please see Response to Comment 0008-21 above.

The SREIR (October 2020) has incorporated the 49 dB contours for operational activities into MM 4.12-2 to ensure that where the triggering distances can be achieved, no sensitive receptor will experience a greater than 5 dB increase over ambient levels. Where these distances cannot be achieved, the applicant must prepare an Acoustic Noise Reduction Report based on site-specific measurements to achieve the Noise Standard detailed in the SREIR.

0008-52

The comment states that it is unreasonable for the mitigation for permanent operational noise impacts to be less stringent than the mitigation for temporary construction noise impacts.

The SREIR (August 2020) contains a detailed discussion of the impacts from both construction and operation. Construction noise is significantly louder than operational noise. The mitigation necessary to address construction noise is therefore more stringent than operations. The SREIR (October 2020) revised MM 4.12-2 to reflect a parallel structure to MM 4.12-1 using the 49 dB contour while maintaining a fixed setback of 210 feet from dwellings and 300 feet from schools. For further discussion of the changes to MM 4.12-2, please see Response to Comment 0008-21.

0008-53

The comment states that the SREIR fails to comply with the Kern County noise element and that MM 4.12-2 is insufficient and has not changed since the 2015 Draft EIR.

The comment is incorrect. The Kern County Noise Element states two goals: (1) to "[e]nsure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained" and (2) to "[p]rotect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources." Kern County General Plan, Noise Element at 148. To achieve these goals, the General Plan adopted a policy and an implementation measure limiting exterior noise to 65 dB DNL. Kern County General Plan, Noise Element at 148-49. The SREIR (October 2020) requires compliance with the policy and implementation measure identified by the County to achieve these goals. For further discussion of the changes to MM 4.12-2, which was substantially revised in the SRIER (October 2020), please see Response to Comment 0008-21.

0008-54

The comment states that operational noise should be controlled to the Noise Standard and that the operational mitigation should be revised to include an ambient screening requirement to identify quiet sensitive receptor areas and to require site-specific mitigation.

Please see Response to Comment 0008-21. The SREIR (October 2020) has incorporated the 49 dB contours for operational activities into MM 4.12-2 to ensure that where the triggering distances can be achieved, no sensitive receptor will experience

a greater than 5 dB increase over ambient levels. Where these distances cannot be achieved, the applicant must prepare an Acoustic Noise Reduction Report based on site-specific measurements to achieve the Noise Standard detailed in the SREIR.

0008-55

The comment states that the SREIR fails to address single-event noise, sleep disturbance, and interior levels.

The comment is incorrect. Please see Response to Comment 0008-25. The Kern County General Plan, Noise Element relies on the DNL metric, which represents the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise occurring during nighttime hours. DNL has been endorsed as an appropriate measure because it not only accounts for noise levels throughout a 24-hour period but also adds 10 dB to nighttime (10 p.m. to 7 a.m.) noise levels. See SREIR (October 2020), Vol. 2, Appendix E. The 10 dB penalty applied during the nighttime hour accounts for increased sensitivity to noise exposure occurring during nighttime hours, and therefore addresses the potential for sleep disturbance. The SREIR (October 2020) also confirms that by controlling Project noise outdoors, indoor noise increases are also moderated because typical construction complying with building code standards can be expected to provide an outdoor-to-indoor noise level reduction of at least 20 dB. By complying with the Noise Standards, sensitive receptors should not experience a significant interior increase. The SREIR contains a thorough and appropriate discussion of the Project's potential effect on nighttime noise, sleep disturbance, and interior noise levels.

0008-56

The comment states that reliance solely on the absolute 65 dB prong of the Noise Standard can result in up to a 35 dB increase in nighttime noise, in violation of the Kern County General Plan Noise Element.

The comment is incorrect as to the compliance with the Kern County General Plan Noise Element. For further response on this issue, please see Response to Comment 0008-44. The SREIR (October 2020) revises MM 4.12-1 and 4.12-2 to incorporate triggering distances based on the 49 dB contour to ensure no more than a 5 dB increase over existing ambient levels. For further response regarding the adequacy of MM 4.12-1 and MM 4.12-2, please see Responses to Comments 0008-20 to 0008-22. The comment also relies on L_{90} measurements, rather than DNL. The L_{90} measurement describes the noise level exceeded 90 percent of the time during each hour, which is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft, and other local noise sources. Most jurisdictions within Kern County and the Bureau of Land Management describe noise exposure in DNL. DNL has been endorsed as an appropriate measure because it not only accounts for noise levels throughout a 24-hour period but also adds 10 dB to nighttime (10 p.m. to 7 a.m.) noise levels. See SREIR (October 2020), Vol. 2., Appendix E. The 10 dB penalty applied during the nighttime hour accounts for increased sensitivity to noise exposure occurring during nighttime hours, and therefore addresses the potential for sleep disturbance. The County's Noise Standard is based on the DNL metric as incorporated into the Kern County General Plan.

0008-57

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment summarizes and states a conclusion to the preceding comments and does not require a detailed response. Please see Responses to Comment 0008-41 to 0008-56.

0008-58

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers.

The prior comments noted in this comment regarding the multi-well HRA were addressed in detail in Chapter 7 of the 2015 FEIR, "Responses to Comments." See SREIR (October 2020), Vol. 5; also see Response to Comment 0008-27.

0008-59

This comment states that the response in the 2015 FEIR and the SREIR (August 2020) to prior comments on the multi-well HRA fail to analyze actual well density in the Project Area, which the comment asserts is much higher than the analyzed well density. Further, the comment states that the response provides no condition or mitigation to limit well density to the levels analyzed in the multi-well HRA.

A graphic showing the density of wells in Kern County is included in Response to Comment 0008-27, and that response explains well density in the Project Area and the relevant inquiry regarding density for purposes of the multi-well HRA. The comment is correct that the multi-well HRA included in the SREIR is the same as the multi-well HRA included in the 2015 FEIR.

The comment is also correct in stating that minor changes to the HRA methodology and modeling and to California Office of Environmental Health Hazard Assessment HRA guidance since 2015 do not affect the analysis in the multi-well HRA. See SREIR (October 2020), Vol. 2, Appendix B.

Response to Comment 0008-27 also explains the applicable mitigation measure, MM 4.3-5, that reduces potential health risk from the Project to levels below the threshold of significance adopted by the SJVAPCD. The SREIR is not required to limit well density to a certain density via a mitigation measure as requested by the comment. This would not be effective at reducing health risk because, as explained in Response to Comment 0008-27, the relevant inquiry is not well density across the County but wells being drilled in close proximity to each other in both location and time, and also located near a single sensitive receptor. A mitigation measure limiting well density across the board would not address the health risk assessed in the multi-well HRA or resulting from the Project. Instead, MM 4.3-5 creates mitigation tailored to Project impacts and actual health risk from Project activities based on the HRAs prepared for the Project, and the trigger distances in MM 4.3-5 will ensure that health risk to sensitive receptors is below the SJVAPCD threshold of 20 in 1 million. See SREIR (October 2020), Vol. 1, at 4.3-143–159. No further mitigation is required.

The comment's suggestion that realistic risk could be the assumption of 633 wells per square mile, which would be 453 in 1 million based on extrapolating the multi-well HRA's conclusions based on a well density of 12.8 wells per square mile, represents a misunderstanding of what drives the risk factor in the multi-well HRA. It is not density of all wells that matters, but the number of wells being drilled proximate in time and location to the same sensitive receptor, as 99.9 percent of the risk in the multi-well HRA comes from diesel particulate matter associated with drilling activities. The purported risk from a well density of 633 wells is overstated, not reasonably foreseeable, and not based on the underlying risk driver for the Project. The article cited by the comment (Preston D. Jordan and Sally M. Benson, 2008. Well Blowout Rates and Consequences in California Oil and Gas District 4 from 1991 to 2005: Implications for Geological Storage of Carbon Dioxide) states that average spatial density for all active wells in California Oil and Gas District 4 was 269 wells per square mile and for steam-injection wells was 73 per square mile. The article states that average well spacing is 321 and 620 feet assuming a square well pattern. Density of all active wells is not the relevant inquiry for purposes of the multi-well HRA. See Response to Comment 0008-27. The article also reaffirms the inaccuracy of the comment's allegation that an HRA assessment based on a density of 633 wells per square mile would be reasonable.

0008-60

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment confirms the SREIR's conclusion that there have been no changes to HRA modeling requirements that would alter the conclusions of the multi-well HRA and there is no need to update the HRA from its 2015 form.

See SREIR (October 2020), Vol. 2, Appendix B.

0008-61

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The SREIR (October 2020) and the Technical Memorandum on HRAs (Appendix B-1) explain the multi-well HRA analysis in detail, including why chronic and acute impacts of well drilling are not the relevant analysis for health risks from Project activities. While the multi-well HRA does not address chronic or acute impacts of cumulative well drilling and cancer risk is not the only toxic endpoint that could be considered, diesel particulate matter results in approximately 99.9 percent of the risk associated with the multi-well scenario. Acute and chronic risk results are included in the "single well with production equipment" scenarios. See Response to Comment 0008-27; see also SREIR (October 2020), Vol. 2, Appendix B-1. Even with the inclusion of extensive production equipment, including engines, a cogeneration facility, several tanks, a flare, and additional equipment, both the acute and chronic (non-cancer) impacts are well below the regulatory standard of 1. SREIR (October 2020), Vol. 2, Appendix B-1, at 5. Thus, chronic and acute impacts are analyzed in the single well HRAs, do not represent the driver of risk for Project activities, and are not necessary to be included in the multi-well HRA.

0008-62

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers.

The Technical Memorandum on the HRAs in SREIR (October 2020) Appendix B-1 contains a thorough discussion of every comment raised in the November 2015 comments on the multi-well HRA, including, but not limited to, the conservative assumptions in the multi-well HRA such as the fact that the all 48 wells are assumed to be 13,000 feet deep even though less

than 3 percent of wells in Kern County are more than 10,000 feet; the conservative nature of the assumption that 48 wells would be drilled around one sensitive receptor proximate in time; the assumption that all particulate matter less than 10 microns would be diesel particulate matter; the assumption that every well would be reworked every other year; the inclusion of a mud sump and associated emissions; and the fact that all seven phases of construction were assumed to occur simultaneously. The Technical Memorandum also explains many of the other HRA assumptions, including but not limited to, the choice of which chemicals to include or exclude, the choice of which pieces of equipment to include, the grid upon which the wells were set, the choice of emission factors, the exhaust temperature and stack exhaust velocity, the reason why acute and chronic impacts were not necessary to include, the choice not to assume changing conditions due to future drilling in the Monterey formation, and the choice to use annualized emissions. Please also see Responses to Comments 0008-27 and 0008-58 through 0008-62.

9 EarthJustice

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September 16, 2020

Via Email and Federal Express

Kern County Planning and Natural Resources Department
 Attn: Cindi Hoover, Lead Planner
 2700 “M” Street, Suite 100
 Bakersfield, CA 93301
hooverc@kerncounty.com
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Re: Comments on the Draft Supplemental Recirculated Environmental Impact Report for Revisions to Title 19-Kern County Zoning Ordinance (2020-A) Focused on Oil and Gas Local Permitting (SCH # 2013081079)

Dear Ms. Hoover:

On behalf of Center for Biological Diversity, Center on Race, Poverty & the Environment, Comité Progreso de Lamont, Comité de Lost Hills en Acción, Committee for a Better Arvin, Committee for a Better Shafter, Earthjustice, Greenfield Walking Group, Natural Resources Defense Council, and Sierra Club, we are writing to submit the following comments regarding the Draft Supplemental Recirculated Environmental Impact Report (the Draft SREIR) for “Revisions to Title 19-Kern County Zoning Ordinance (2020-A) Focused on Oil and Gas Local Permitting” (the Ordinance). These comments are offered to ensure that Kern County (the County)’s consideration of the Ordinance complies with the California Environmental Quality Act (CEQA)¹ and CEQA Guidelines.²

As an initial matter, we urge the County to reverse the steps it has taken to suppress public comment and participation. In particular, the County should allow for a comment period longer than the absolute minimum required by statute, and it should provide Spanish speakers with basic access to the public process. Given the magnitude of the industrial activities authorized by the Ordinance and the threat that these activities pose to community members’ health—particularly in the midst of the COVID-19 pandemic—the County’s already overburdened and most vulnerable residents deserve a reasonable opportunity to provide meaningful input on a decision that will disproportionately affect them.

Further, we urge the County to seriously reconsider the approach that the Ordinance takes to permitting oil and gas wells in the County. The Ordinance undermines sound government decision making and public transparency by proposing to greenlight tens of thousands of new oil and gas wells—and all associated infrastructure—on the basis of one high-level and inadequate review. The Draft SREIR wholly neglects to analyze or mitigate the site-specific impacts of oil and gas development in the County, and yet the Ordinance would deprive community members of any future notice or opportunity to comment when site-specific permits are issued. Rather than blindly fast-tracking more harmful oil and gas development, the County should adopt measures

¹ Public Resources Code § 21000 *et seq.*

² California Code of Regulations, title 14, § 15000 *et seq.*

0009-1

0009-2

0009-3

that improve health and safety protections for local communities already threatened by oil and gas operations, and pave the way for a just transition to a more secure and sustainable economic base for the County.

Oil and gas drilling already harms the health of far too many residents in the County, especially in low-income communities of color. Research shows that the closer people live to oil and gas wells, the more likely they will be exposed to toxic contaminants in air and water and the more elevated their risk of associated health effects, including but not limited to increased risk of asthma, premature births, high-risk pregnancies, and cancer.³ The COVID-19 pandemic has only heightened these concerns—a major Harvard University study of air pollution and COVID-19 mortality in the United States found that exposure to even a small increase in fine particulate matter (PM_{2.5}) is linked to an 8% greater chance of dying from COVID-19.⁴ The misguided nature of the Ordinance and Draft SREIR—which encourages more drilling and air pollution, including in close proximity to communities—is all the more apparent given that the County's Black and Brown residents are more likely to live near oil wells,⁵ and more likely to get sick or die from COVID-19.⁶

Even though the County residents already breathe some of the worst air quality in the country, the Ordinance and Draft SREIR aim to make it quicker and easier for new drilling to commence, threatening increased toxic air pollution that would exacerbate existing health harms. Likewise, even though the Kern County Subbasin is in a critical condition of overdraft, the Ordinance would allow the oil and gas industry to drastically increase its use of domestic- and irrigation-quality water in the coming years without mitigation. Rather than perpetuating and deepening existing health and environmental hazards posed by the oil and gas industry, the County should institute a 2,500-foot setback to protect homes, schools, and other sensitive locations from nearby drilling, and take other affirmative steps to reduce the harmful air and water impacts of drilling on local communities and the environment.

As described below, the County's Draft SREIR falls far short of providing an adequate explanation for these troubling decisions. Among other things, the Draft SREIR distorts science and the law, omits required analyses, ignores myriad studies that contradict its statements and conclusions, and simply pays insufficient attention to the real-world consequences that its proposal will have on frontline communities in the County. For these and the additional reasons expressed below, we strongly urge the County to reject the Draft SREIR as an informational document, and to require a reconceived, re-drafted and re-circulated Draft SREIR.

³ See, e.g., Shonkoff, S.B.C., Domen, J.K., Hill, L.A.L. (2019). *Human health and oil and gas development: An assessment of chemical usage in oil and gas activities in the Los Angeles Basin and the City of Los Angeles* at 6, 39-40, <https://www.psehealthenergy.org/wp-content/uploads/2019/08/Chemical-Assessment.pdf>.

⁴ Wu, Xiao et al., *Exposure to air pollution and COVID-19 mortality in the United States: A nationwide cross-sectional study* (updated Apr. 24, 2020), <https://projects.iq.harvard.edu/covid-pm/home>.

⁵ See, e.g., Natural Resources Defense Council, *Drilling in California: Who's at risk?* (October 2014), <https://www.nrdc.org/sites/default/files/california-fracking-risks-report.pdf>.

⁶ See, e.g., California Department of Public Health, *State Officials Announce Latest COVID-19 Facts* (News Release No. NR20-111) (June 3, 2020), <https://www.cdph.ca.gov/Programs/OPA/Pages/NR20-111.aspx>.

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I. The County Has Provided Inadequate Time to Review the Draft SREIR.

The County provided the public with 45 days to comment on the Draft SREIR, which was not nearly sufficient to allow for the meaningful participation that CEQA seeks to enable. Despite the many needs we have identified previously and discuss in more detail below, the County has failed to explain why it has not extended the public comment period. In its August 13 response to our August 12 request for an extension of time to comment on the Draft SREIR, the County simply stated that staff has “determined that an extension of time is not warranted and all notification complies with State law.”⁷

In no way is this a typical project: the Ordinance will determine how oil and gas will be developed in the county in the next 20 or more years, resulting in significant environmental health impacts for all Kern County residents for the foreseeable future. The Draft SREIR contains more than 2,000 pages of highly technical material that implicates local communities’ ability to access clean air, clean water, and a functioning, sustainable local economy, among other things. Despite the complexity of the Draft SREIR—and the extraordinary length and complexity of the County’s 2015 Final EIR upon which the Draft SREIR relies—the County afforded the public only the statutory minimum time period to review and provide comments. The Planning Commission is scheduled to make a recommendation to the Board of Supervisors to approve, conditionally approve, or deny the Ordinance, on or around November 12. The County must take more time to engage wide public involvement.

The County’s attempt to railroad the approval process to quick completion with minimal time and means for communities to participate—when those communities are dealing with life-threatening crises including the COVID-19 pandemic and wildfires surrounding the County—is unacceptable. Due to the global pandemic, our offices—like those of many public advocacy groups—have been forced to close, and our staff has had to reduce its capacity due to childcare, illness, and other circumstances beyond our control. These life-threatening crises have substantially shut down or otherwise altered almost every aspect of life in Kern County. Many community members are constrained by childcare, illness, and other circumstances that restrict their time and ability to review and provide comments on the Draft SREIR.

As described further below, this lack of time to comment reflects a broader lack of interest on the part of the County in hearing from affected communities about its massively consequential plans for the expansion of oil and gas drilling. The County’s approach demonstrates a disregard not only for the public’s perspective, but also for CEQA and its focus on informed self-government.⁸

Given that the County’s previous EIR and ordinance were set aside by the Fifth District Court of Appeal for a failure to comply with CEQA, County officials and community members would be best served by allowing sufficient time for a full vetting of the Draft SREIR. The County should reopen the comment period to allow the public additional time to consider the

⁷ County Response to Commenters’ Request for Extension of Time (Aug. 13, 2020); *see also* Commenters’ Request for Extension of Time (Aug. 12, 2020).

⁸ *Laurel Heights Improvement Assn. v. Regents of Univ. of Cal.*, 6 Cal. 4th 1112, 1123 (1993) (“public participation is an essential part of the CEQA process”).

Draft SREIR and to provide its views, and should extend the overall timeline for consideration of the Ordinance to the end of 2022, or at least until the current public health crises subside and the public can meaningfully participate. Furthermore, in light of the inadequate time provided, we reserve the right to identify new issues, provide additional information, and propose additional mitigation measures during the County's ongoing decision-making process for the Ordinance.

II. The County Must Disclose Information About the Ordinance and Its Environmental Impacts in Spanish, and Promote Other Ways to Ensure the Meaningful Involvement of Spanish-Speaking Residents Who Are Disproportionately Harmed by Oil and Gas Activities.

We continue to urge the County to take immediate steps to make the public process for the Ordinance accessible in Spanish. All Kern County residents, especially its Hispanic and Spanish-speaking populations, low-income communities, and other vulnerable residents, deserve a reasonable opportunity to provide meaningful input on a decision that will disproportionately affect them.⁹

"Public participation is an essential part of the CEQA process," and a lead agency should include procedures for "wide public involvement, formal and informal . . ."¹⁰ Additionally, CEQA requires that an EIR must be written and presented in a way that is understandable to members of the public.¹¹ As we noted in our scoping comments, the Fifth District Court of Appeal's recent decision underscores the desirability of translation and interpretation services, as well as the County's authority to provide them. More importantly, the Court advised that the County must be able to substantiate any decision to ignore legitimate community needs.¹²

As noted in guidance issued by the Office of the Attorney General, local agencies such as the Kern County Planning and Natural Resources Department play an important role helping to achieve the statewide policy of environmental justice for all Californians.¹³ Government Code section 65040.12(e)(1) defines environmental justice as "the fair treatment and *meaningful involvement* of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies."¹⁴ Section 65040.12(e)(2) further specifies that environmental justice entails

⁹ We appreciate that many community members prefer to refer to themselves as Latinx rather than Hispanic. These comments use the term Hispanic to reflect the terminology used by the U.S. Census, which is cited in this section.

¹⁰ CEQA Guidelines § 15201. *See also* CEQA Guidelines § 15002(a)(1) (The basic purposes of CEQA are to "[i]nform governmental decision makers *and the public* about the potential, significant environmental effects of proposed activities" (emphasis added)).

¹¹ *San Franciscans for Reasonable Growth v. City and County of San Francisco*, 193 Cal.App.3d 1544, 1549 (1987).

¹² *King & Gardiner Farms, LLC v. County of Kern* (Case No. F077656, Feb. 25, 2020), Slip Opinion at pp. 125-26.

¹³ State of California Department of Justice, Office of the Attorney General, Environmental Justice at the Local and Regional Level Legal Background, July 10, 2012, at 1, <https://oag.ca.gov/sites/all/files/agweb/pdfs/environment/comments-barker-logistics-impact-report.pdf?>

¹⁴ Government Code § 65040.12(e)(1) (emphases added).

“[g]overnmental entities engaging and providing technical assistance to populations and communities most impacted by pollution to promote their meaningful participation in all phases of the environmental and land use decisionmaking process.”¹⁵

In Kern County, the need for the local government decision makers to make public comment processes available to Spanish-speakers is self-evident: Hispanic or Latinx residents make up the majority—over 54 percent—of the County’s population.¹⁶ Relatedly, over 39 percent of County residents speak Spanish, and at least 16 percent of residents cannot speak English or do not speak it well or very well.¹⁷

The need for Spanish-language accessibility is particularly acute for the Ordinance, as Spanish-speaking residents, low-income communities, and communities already over-burdened by pollution also disproportionately live in close proximity to oil and gas drilling activities in Kern County. A very recent analysis by Kyle Ferrar, MPH, shows that many local population centers near oil and gas drilling—specifically Shafter, Lost Hills, Bakersfield, Arvin, and Lamont—are home to substantial Spanish-speaking communities.¹⁸ For example, more than 90 percent of households living in and near Lost Hills speak Spanish as their primary language, and more than 52 percent have limited English proficiency. Further, more than 59 percent of Lost Hills households make \$40,000 or less annually (which is approximately 80 percent of the Kern County annual median income).¹⁹

Similarly, in Lamont and Arvin, more than 86 percent and 80 percent of households speak Spanish as their primary language, respectively; and more than 32 percent and 28 percent have limited English proficiency, respectively. The majority of households in Lamont and Arvin also have incomes that are at or below 80 percent of the County’s annual median income.²⁰

Although there are 78,016 operational oil and gas wells across the entire area of Kern County (including active and idle), more than 16 percent of these wells (12,587) are located within two miles of Shafter, Lost Hills, Bakersfield, Arvin, and Lamont—key population centers that are home to substantial proportions of Spanish speakers.²¹

Despite the overwhelming need for the County to improve its public process for the Ordinance, especially during these extremely difficult times, it has decidedly gone the other way. The County has not acknowledged any of the numerous language access needs demonstrated by

¹⁵ Government Code § 65040.12(e)(2)(D).

¹⁶ United States Census Bureau, Quick Facts Kern County, CA (July 1, 2019). <https://www.census.gov/quickfacts/kerncountycalifornia>.

¹⁷ United States Census Bureau, Selected Social Characteristics in the United States, *available at* https://data.census.gov/cedsci/table?d=ACS%205-Year%20Estimates%20Data%20Profiles&table=DP02&tid=ACSDP5Y2018.DP02&y=2018&g=0400000US06_0500000US06029.

¹⁸ See generally Kyle Ferrar, MPH, “Recommendations for an EIR to Prioritize Kern County Frontline Communities” (Sept. 16, 2020). <https://www.fractracker.org/2020/09/kern-eir-ej/>.

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.* at Table 2.

the community, nor has it provided an adequate explanation for its refusal to take even the simplest steps toward improving information disclosure and public participation. These simple steps include translating notices and key environmental documents into Spanish, allowing verbal comments during meetings, providing professional simultaneous interpretation, and extending the public comment period—among other things that we describe below.

Kern County already has the ability to allow Spanish-speaking residents, low-income residents, and residents who do not have access to the Internet to participate in various public processes. For example, the Planning Department has provided both English and Spanish versions of several notices and other documents related to various community development programs, including the Kern County General Plan update.²²

In stark contrast to its efforts to promote meaningful public involvement for other programs, here, the County has made it extremely difficult for the public, including Spanish-speaking residents, low-income residents, and other populations impacted by and vulnerable to oil and gas activities, to participate in the public process for this Ordinance.

Despite possessing the skills, resources, and requisite technology, the County has refused to translate key documents related to the Ordinance, including key portions of the Draft SREIR. The County has failed to translate even the notice of availability for the Draft SREIR. Since the County has translated other notices into Spanish in order to share information, its refusal to do so here is glaring and unacceptable.

Though we appreciate the County's effort to provide Spanish subtitles and an interpreter through a Spanish phone line during the virtual workshop it held on August 17, the County did not actually disclose any environmental information in this workshop to fulfill its responsibilities under CEQA. Instead, the County merely described the Draft SREIR's structure and the County's decision making schedule.²³ The virtual workshop was thus nothing more than an empty gesture, especially in comparison to the effort it made to at least summarize key impacts and alternatives in community workshops conducted for the 2015 EIR. Equally frustrating and unacceptable, the County also prohibited members of the public from offering verbal comments during the virtual workshop, and an earlier meeting it held regarding the Ordinance on May 13. We previously shared our concerns regarding this practice in our letter dated May 29.

²² See, e.g., Public Notice: County of Kern Consolidated Plan for FY 2020-21 Through 2024-25, FY 2020-21 Annual Action Plan for Community Development Programs and Substantial Amendments to County's Citizen Participation Plan (Spanish (Revised)).

https://psbweb.co.kern.ca.us/planning/pdfs/comdev/Con_Action_Plan_PubNotice_Spanish.pdf.

Kern County Planning and Natural Resources Department, Community Development: New Items/Public Notices/Applications, <https://kernplanning.com/community-development-2/>;

Kern 2040, Kern County General Plan Update (Spanish translation).

²³ Kern County Draft Supplemental Recirculated Environmental Impact Report Workshop Presentation Slides, August 17, 2020,

https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/Oil_Gas_SREIR_Workshop_081720Meeting_PPSlide.s.pdf.

Kern County's Spanish-speaking residents are already disproportionately burdened by oil and gas development, and they would be directly and disproportionately affected by the further development contemplated by the Ordinance. The County can and must take the following steps to allow Spanish-speaking residents to participate meaningfully in the public process for this Ordinance:

- Reissue and republish the notice of availability of the Draft SREIR in Spanish;
- Translate all other current and future notices related to the Ordinance into Spanish, including notices of public meetings or hearings, and notices of determination (if applicable);
- Translate into Spanish and post, at a minimum, the executive summary, project description, and sections on air quality, water quality ("hydrology and water quality" and "utilities and services systems" chapters), cumulative impacts, and alternatives of the Draft SREIR—which, along with any other translated sections, should be posted at least 45 days prior to the close of an extended public comment period;
- Provide two-way simultaneous interpretation for public meetings and hearings;
- Accept, consider, include in the record, and respond to verbal comments as well as written comments, made in Spanish as well as English; and
- Translate into Spanish any findings or statement of overriding considerations adopted by the Board of Supervisors (if applicable).

The County should also amend the Ordinance to allow public participation and Spanish-speaking community involvement prior to issuing oil and gas permits.

III. The County's Attempt to Subvert CEQA and Foreclose Site-Specific Review Fails Because the Ordinance and Draft SREIR Do Not Establish a Ministerial Permitting Scheme.

Since the initial inception of the Ordinance by the oil and gas industry, we have informed the County that the Ordinance and its accompanying CEQA analyses do not provide an effective means for the County to identify, analyze, and mitigate the significant environmental impacts caused by oil and gas development. The Ordinance and Draft SREIR unlawfully attempt to insulate all such activity from meaningful site-specific review, local input, and accountability. While the Draft SREIR now attempts to paper over the true purpose of the industry-sponsored Ordinance with a new list of "County Objectives" that include environmental protection (*id.* at 1-10 to 1-11), the Ordinance remains fundamentally unchanged from the version adopted in 2015. *Id.* at 1-7. Back in 2015, the County's Planning Director identified CEQA as a "problem" and admitted that the oil and gas industry was looking to "trad[e] . . . not having to do 2,000 EIRs a

year, and not having to be stopped by CEQA at these other agencies” for the County’s “over-the-counter” permit process.²⁴

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Cont'd

Seeking to dispose of the oil and gas industry’s CEQA obligations in one fell swoop, the Draft SREIR purports to describe and prescribe mitigation measures for tens of thousands of new oil and gas wells to be drilled in the next 20 or more years—but the document does not contain the detailed, site-specific analysis that is required for a “project-level” EIR that might properly preclude CEQA analyses for future permits. As such, the Draft SREIR fails in its basic purpose as a useful informational document for the public and decision makers.²⁵

The Draft SREIR states that it “examin[es] . . . detailed site-specific impacts” (*id.* at 2-19), but this is simply untrue. The Draft SREIR “is based on the information contained in the 2015 FEIR” (Draft SREIR at 1-2), and the Final EIR admits that its analysis does not assess “the precise location(s)” where future oil and gas development activities will occur (Final EIR at 7-104, AR008597), and instead merely “informs the policy decisions reflected in the ordinance.” *Id.* at 7-101 (AR008594). The Final EIR also concedes that “the impact analysis has been performed on a landscape or regional scale,” not on the level of particular drilling sites or even individual oil fields. *Id.* The Final EIR attempts to justify this admitted failure by asserting that it contains “extensive analysis and mitigation measures at the micro scale.” *Id.* However, assessing impacts on a “micro scale” at unidentified, hypothesized future well sites simply is not the same as analyzing impacts for actual wells at specific, unique locations within the County. Nor is such a hypothesized analysis consistent with CEQA’s objective to ensure that local community members are notified about, and able to share meaningful input on, new industrial development in their neighborhood that will affect their health and quality of life.

Beyond asserting, incorrectly, that the Draft SREIR’s impact analysis is sufficiently site-specific, the Draft SREIR also seeks to exempt future well approvals from CEQA analysis on the conceit that the Ordinance establishes a purely ministerial process for authorizing future oil and gas activities in the County. *See, e.g., id.* at 2-18. The County’s characterization of the oil and gas permitting process devised by the Ordinance as “ministerial” is of no moment, as the State Legislature pointedly has not delegated to local agencies “the prerogative to determine which projects are ministerial and hence exempt from the requirements of CEQA.”²⁶

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Significantly, contrary to various public representations by the County, the Fifth District Court of Appeal did *not* endorse the basic structure of the Ordinance. Rather, the Court stated in its slip opinion that no law of the case was established as to whether the County’s permits are discretionary or ministerial,²⁷ and the Court flagged in its published discussion of remedy “the serious yet unresolved question about whether County’s issuance of permits involves the exercise of discretion” as a ground for setting aside the 2015 Ordinance and Final EIR.²⁸

²⁴ Transcript of Kern County Board of Supervisors Hearing (Nov. 9, 2015) at 15-16, 300 (AR112698-99, 112983) (statement of L. Oviatt).

²⁵ *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564.

²⁶ *Day v. City of Glendale* (1975) 51 Cal.App.3d 817, 821-22.

²⁷ *King & Gardiner Farms, LLC v. County of Kern* (Case No. F077656, Feb. 25, 2020), Slip Opinion at 140 & n. 46.

²⁸ *King & Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814, 899.

The County's proposal for setback distances in section 19.98.060 of the Ordinance exemplifies that the purported ministerial permitting process still, in fact, allows for discretionary action by the County. Proposed section 19.98.050(C) specifies that if an applicant seeking a so-called "ministerial" permit is somehow "unable to comply" with section 19.98.060's setback distances or other conditions, the applicant must submit an application for a conditional use permit (CUP) instead. Section 19.98.050(C) further provides that the Planning Commission may waive the setback requirements or any other conditions from section 19.98.060 if the Planning Commission determines that "such waiver will not result in material detriment to the public welfare or the property of other persons located in the vicinity, based on findings of fact and compliance with the California Environmental Quality Act."²⁹ Applicants seeking a CUP in the first instance likewise are eligible for the same waiver of setbacks.³⁰ In essence, the County is attempting to build in a discretionary action requiring independent judgment within a supposedly ministerial permitting process. This approach is improper, and the County cannot legally conduct such a hybrid process while calling the conformity review process ministerial.

Further, although the Draft SREIR offers "clarifications for some of the mitigation measures" first adopted in 2015 (*id.* at 4.18-1), many of the measures remain open-ended and continue to lack the fixed standards or objective measurements that would be necessary to establish a ministerial permitting program.³¹ For example:

- The Draft SREIR does not address or alter Mitigation Measure 4.2-2(h), which provides that: "Overhead electrical or communication lines . . . shall be aligned to the greatest extent feasible with existing access roads and the minimum distance between the access road and the well installation or other oil and gas facility, parallel to tree or row crops, described further in mitigation measures for Public Utilities. If the use of existing roads is not feasible, lines shall be routed to minimize surface disturbance and minimize the impacts to surface activity." Final EIR at Table 12-1 (AR029055).
- Under Mitigation Measure 4.3-5, permit applicants can take alternative risk reduction measures rather than abiding by setback distances if the required setback distances "cannot be met." Draft SREIR at 4.3-136 to 4.3-137. This standard-less and inexact language invites applicants to insist that they cannot comply for reasons of their own choosing, thereby requiring the County to make discretionary decisions regarding whether it is possible for applicants to meet the setback requirements and, if not, whether alternative measures still sufficiently reduce risk.
- Mitigation Measure 4.4-14(*l*), formerly Mitigation Measure 4.4-15(*l*), requires an applicant "to minimize the amount of new disturbance." Draft SREIR at 4.18-12.
- Mitigation Measure 4.6-5 relieves an operator of the obligation to "avoid building infrastructure on expansive soil" if "the Applicant determines that mineral recovery is

²⁹ Zoning Ordinance section 19.98.050(C).

³⁰ Zoning Ordinance section 19.98.050(A) & (B).

³¹ CEQA Guidelines §15369.

infeasible from a different location” and obtains a “site-specific Professional Engineering certification . . . concluding that the new equipment will not cause substantial risks to life or property.” Draft SREIR at 4.18-32.

- Mitigation Measure 4.8-6, intended to protect the public from exposure to hazardous substances, allows an operator to choose which standards to follow from among multiple sources and generically instructs operators to “[s]ize reserve pits to avoid overflows,” “[d]esign systems with the smallest volumes possible,” and [r]educe the amount of excess fluids entering reserve and production pits.” Draft SRIER at 4.18-40 to 4.18-41.
- Mitigation Measure 4.8-8, also intended to protect the public from exposure to hazardous substances, likewise allows an operator to choose which standards to follow from among multiple sources. Draft SREIR at 4.18-43 to 4.18-44.

Because the Draft SREIR “contains standards which, if applicable,” require a “degree of independent judgment, the [County] may not categorically classify the issuance of permits as ministerial.”³²

IV. The Draft SREIR’s Analysis and Mitigation of Air Quality Impacts is Inadequate.

It is vitally important that the County accurately analyze and fully mitigate air quality impacts because air quality bears directly on the health and welfare of Kern County residents. Unfortunately, the San Joaquin Valley, including Kern County, is not achieving any federal or state ambient air quality standards for dangerous fine particulate matter (PM_{2.5}) or ozone pollution. Draft SREIR at 4.3-6 (Table 4.3-2).³³ In fact, not only is the San Joaquin Valley failing to attain the health-based air quality standards for these pollutants, the Valley’s air quality is the worst in the country for PM_{2.5} and among the worst in the country for ozone.³⁴

Nonetheless, the Ordinance intends to authorize new oil and gas drilling that will emit hundreds of thousands of tons of harmful air pollution over the coming two decades. Draft SREIR at 4.3-107 to 4.3-110 (Tables 4.3-27 and 4.3-28)

Unfortunately and unlawfully, the Draft SREIR fails to disclose or address known deficiencies in its principal mitigation measure for air quality impacts—Mitigation Measure 4.3-8. The Draft SREIR also neglects to adequately analyze or mitigate deadly emissions of fine particulate matter pollution (also called PM_{2.5}), as directed by the Court of Appeal in its recent decision setting aside the 2015 Ordinance and Final EIR.

³² See *Protecting Our Water and Environmental Resources v. County of Stanislaus* (Aug. 27, 2020, S251709) __ Cal.5th __.

³³ See also San Joaquin Valley Air Pollution Control District (SJVAPCD), Ambient Air Quality Standards & Valley Attainment Status, available at <https://www.valleyair.org/aqinfo/attainment.htm>.

³⁴ American Lung Association, State of the Air 2020 at 20-22, 23-25, available at <http://www.stateoftheair.org/assets/SOTA-2020.pdf>.

A. Overview of the County's Approach to Mitigating Criteria Pollutants

As the County did previously in 2015, the Draft SREIR continues to rely heavily on the San Joaquin Valley Air Pollution Control District's (Air District's) existing air quality rules and regulations to mitigate air pollution. The Draft SREIR assumes the Air District will apply these requirements to individual sources when it issues air permits to individual oil and gas operators. Draft SREIR at 4.3-74 to 4.3-76 (setting forth Mitigation Measures 4.3-1 to 4.3-4); *see also* 2015 Final EIR at 7-183 (AR008676) (discussing "compliance with applicable air quality regulations" as mitigation).

But the Air District's permitting rules do not limit air pollution or require compensating offsets from many emission sources associated with oil and gas development. Emissions from small equipment, well maintenance and treating operations, mobile sources, and construction activities are not addressed by the Air District. Draft SREIR at 4.3-65, 4.3-92, 4.3-94, 4.3-105, 4.3-108. Cumulatively, these "unpermitted" sources will emit hundreds of millions of pounds of air pollution. *Id.* at 4.3-108 to 109 (Table 4.3-28). Consequently, identical to the County's 2015 Final EIR, the Draft EIR adopts Mitigation Measure 4.3-8 to address these "emissions . . . which are not otherwise regulated and offset" and asserts that these emissions from unpermitted sources "shall be mitigated to a level of no net increase." *Id.* at 4.3-113.

Mitigation Measure 4.3-8 purports to offset the Ordinance's otherwise unaddressed air pollution increases in two ways. First, under an "Oil and Gas Emission Reduction Agreement" or "OG-ERA" that the County and Air District entered into on August 18, 2016, individual well operators may pay a fee to be used by the Air District to fund pollution-reducing activities within the Air District's eight-county jurisdiction. Draft SREIR at 4.3-113 to 4.3-114. Alternatively, an individual well operator may implement its own emission reduction project, subject to oversight by the Air District under the OG-ERA. *Id.* at 4.3-114. Mitigation Measure 4.3-8 provides a non-exclusive list of potential projects that may qualify to offset pollution under Mitigation Measure 4.3-8, *id.* at 4.3-121 to 4.3-122.

Under Mitigation Measure 4.3-8, all final decisions about pollution-reducing projects—including how to spend fee receipts and whether to accept a particular operator's proposal for implementing their own reductions—will be made in the future, at the final discretion of the Air District. *See* Draft SREIR at 4.3-114; *see also generally id.* at Appendix C (OG-ERA).

B. The Draft SREIR Fails To Disclose or Address Known Deficiencies in Mitigation Measure 4.3-8 and the OG-ERA.

Following the same approach as the 2015 Final EIR, the Draft SREIR assures the public and decision makers that, under Mitigation Measure 4.3-8, "emissions . . . shall be mitigated to a level of no net increase" or "to net zero." *Id.* at 4.3-113, 4.3-122; *see also id.* at 4.3-116 ("Applicants paying the OG-ERA fee are thus fully mitigating for all Project emissions). In so claiming, however, the Draft SREIR does not actually analyze whether adequate pollution-reducing opportunities exist in the San Joaquin Valley to counteract the enormous volume of pollution the Ordinance will generate. Moreover, Mitigation Measure 4.3-8 does not mandate any schedule for implementing pollution-reducing projects, nor does it include any mechanism to

ensure that the rate of new permitting does not outpace the rate of mitigation or to ensure that mitigation ultimately happens.

In 2015, the County's Final EIR acknowledged that, under Mitigation Measure 4.3-8, "not all of the reductions achieved by the OG-ERA will occur exactly contemporaneously with Project emissions increases." *Id.* at 7-185 (AR008681). Nonetheless, the 2015 Final EIR still offered the following reassurances to the public and County decision makers that:

Mitigation Measure 4.3-8 will ensure collection of mitigation fees to fund emission reductions *at the actual pace of well development in the County*. There may be a slight lag time between collection of the air emissions mitigation fee (i.e., prior to site plan approval) and the accomplishment of the emissions reductions funded by the fee, due to the time required to solicit and vet proposals for emission reduction projects, award the funds, and complete construction or implementation, on a county-wide annual basis. *However, the emission reductions from implementing the OG-ERA are expected to match the emissions from drilling new wells on an annual basis.*

Id. (emphasis added).

The County's Draft SREIR fails as an informational document, in the first instance, because nowhere does it apprise the public or decisionmakers of the previously admitted lag between the issuance of new permits and the onset of air-polluting activities on the one hand, and the later (if ever) funding and implementation of pollution-reducing activities.

Even worse, the Draft SREIR actively misleads the public about the structure, function, and efficacy of Mitigation Measure 4.3-8 because it does not correct the statement in the 2015 Final EIR that "Mitigation Measure 4.3-8 will fund emission reductions at the actual pace of well development in the County[,] . . . *match[ing] the emissions from drilling new wells on an annual basis.*" *Id.* at 7-185 (AR008681) (emphasis added). To the contrary, as discussed below, a commensurate rate of mitigation was never achieved in more than four years of implementation of the OG-ERA, which the County has proposed to rely upon again without any changes.

Remarkably, rather than disclose the County's actual, real-world experience to date with the Air District and OG-ERA, the Draft SREIR identifies *other* mitigation programs that it views as successful, including a program administered by the California Air Resources Board (CARB). *Id.* at 4.3-118. The County must correct this misinformation by disclosing its experience to date with Mitigation Measure 4.3-8, the OG-ERA, and the Air District—both for the obvious reason of transparency and also because this experience constitutes significant new information that the County must address.³⁵

Though nowhere acknowledged in the Draft SREIR, the County immediately broke its 2015 promise of year-over-year equivalent permitting and pollution reductions because the County and Air District waited almost nine months after the 2015 Ordinance was adopted before they finalized the OG-ERA. *See* Draft SREIR at 4.3-113 (noting "OG-ERA was entered into on

³⁵ *See* section IX.B.1, *infra*.

August 18, 2016). Nonetheless, even without the OG-ERA in place, the County issued permits for new oil and gas activities. In fact, during the first year after adoption of the 2015 Ordinance, the County issued almost 1,200 new permits—with polluting activities allowed to commence immediately—all while it was still working with the Air District “to set up” processes for the transfer of mitigation fees and the selection of pollution-reducing projects.³⁶

Alarming, over the first four years of activity under Mitigation Measure 4.3-8 and the OG-ERA, a significant and growing gap between permit issuances and pollution-reducing projects developed. Both the Air District’s inability to spend all of the air mitigation fee monies collected, and the low quantities of emissions reductions achieved, demonstrate that Mitigation Measure 4.3-8 and the OG-ERA were implemented or enforced as described by the County in the 2015 Final EIR or in the Draft SREIR.

Pursuant to Mitigation Measure 4.3-8 and the OG-ERA, the County paid to the Air District, through November 2019, almost \$89 million in fee monies to fund pollution-reducing projects intended to offset otherwise unregulated oil and gas emissions.³⁷ The Air District, however, has failed to spend all of these funds. For example, the District’s most recent annual report indicates that it received almost \$43 million from the OG-ERA and other emission reduction agreements for the period from July 1, 2018 to June 30, 2019, but was only able to spend \$12.5 million and encumber another \$6.6 million.³⁸ This shortfall in spending and encumbrances left the Air District with an ending unencumbered balance of more than \$48 million—reflecting an ever-growing failure of the Air District to spend OG-ERA and other emission reduction agreement receipts. The period-ending unencumbered balance was \$13.6 million for 2018³⁹ and \$6.4 million for 2017.⁴⁰

Not only has the Air District failed to spend all of the fee monies it has received pursuant to Mitigation Measure 4.3-8 and the OG-ERA, the money it did manage to spend has not been sufficient to achieve emission reductions that come anywhere close to the increased emissions from new drilling authorized by the County under the 2015 Ordinance. For example, a 2018 report by the Air District indicates that in the 12-month period from July 1, 2017 to June 30, 2018, the Air District only reduced 853 tons of NO_x and 181 tons of PM₁₀ using emission reduction agreement funds.⁴¹ Notably, these quantities represent the total amount of pollution reduced by the Air District pursuant to its 36 separate emission reduction agreements, of which

³⁶ See Kern County Planning and Natural Resources Department, “Kern County Oil and Gas Permitting Program Annual Progress Report (December 9, 2015 to November 30, 2016)” at 3-5.

https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/kern_oil_gas_annual_progress_report_2016.pdf.

³⁷ See Kern County Planning and Natural Resources Department, “Kern County Oil and Gas Permitting Program Annual Progress Report (December 1, 2018 to November 30, 2019)” at 7, 9-10.

https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/kern_oil_gas_annual_progress_report_2019.pdf.

³⁸ San Joaquin Valley Air Pollution Control District (SJVAPCD), “2019 Annual Report - Indirect Source Review Program” at 9. <https://www.valleyair.org/ISR/Documents/2019-Annual-Report.pdf>.

³⁹ SJVAPCD, “2018 Annual Report - Indirect Source Review Program” at 10.

<https://www.valleyair.org/ISR/Documents/2018-Annual-Report.pdf>.

⁴⁰ SJVAPCD, “2017 Annual Report - Indirect Source Review Program” at 7.

<https://www.valleyair.org/ISR/Documents/2017-ISR-Annual-Report.pdf>.

⁴¹ SJVAPCD 2018 Annual Report at 11.

the OG-ERA is just one.⁴² In any event, even if all of these pollution reductions were dedicated to offsetting emissions from the Ordinance, they would be insufficient: 853 tons of NO_x is only enough to mitigate emissions from 367 new wells.⁴³ That is a small fraction of the 1,000+ new well permits the County has issued annually,⁴⁴ and an even smaller fraction of the 2,697 new production wells that the Ordinance allows annually (Draft SREIR at 1-12).

The Air District's most recent annual report, issued in 2019, likewise indicates that it has only been able to abate enough air pollution to offset NO_x emissions from several hundred new wells during the preceding 12-month reporting period.⁴⁵

Critically, even small gaps between the onset of activities authorized by the Ordinance and the eventual implementation of mitigation threaten to expose Kern County residents to significant spikes in unhealthy pollutants. That's because emissions from just five or six new oil wells qualify as a "significant" quantity of air pollution. See Draft SREIR at 4.3-56 (stating that 10 tons per year of NO_x emissions are significant), 4.3-111 (indicating that, for 2019 and 2020, new wells are projected to emit 2.11 and 1.88 tons per year of NO_x, respectively). The current lag between the issuance of new permits and the institution of mitigation at some date also threatens an even greater harm—namely, that mitigation will not occur at all, should the County ultimately find out long after it has issued too many permits that there simply are not enough pollution-reducing opportunities within the Air District to offset the huge increase of air pollution.

The poor performance of Mitigation Measure 4.3-8 and the OG-ERA, which has not been implemented or enforced as promised in the 2015 Final EIR or as prospectively described in the Draft SREIR, is attributable to several shortcomings that can feasibly, and therefore must, be addressed by the County before it may proceed to finalize the SREIR or adopt the Ordinance:

- First, the Ordinance, Mitigation Measure 4.3-8, and the OG-ERA all lack any requirement or mechanism that ties the rate of new oil and gas permitting—and the onset of new, harmful air pollution emissions—to the rate of mitigation accomplished by the Air District. Mitigation Measure 4.3-8 therefore is unenforceable, unworkable, and the Draft SREIR's statements that Mitigation Measure 4.3-8 will reduce emissions "to a 'no net increase' from

⁴² *Id.* at 8.

⁴³ See Draft SREIR at 4.3-111 (noting in Table 4.3-30 that, for 2018, each new well will emit 2.32 tons of NO_x).

⁴⁴ Kern County Planning and Natural Resources Department, 2019 Annual Progress Report at 6; Kern County Planning and Natural Resources Department, 2016 Annual Progress Report at 4; Kern County Planning and Natural Resources Department, "Kern County Oil and Gas Permitting Program Annual Progress Report (December 1, 2016 to November 30, 2017)" at 4 https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/kern_oil_gas_annual_progress_report_2017.pdf; Kern County Planning and Natural Resources Department, "Kern County Oil and Gas Permitting Program Annual Progress Report (December 1, 2017 to November 30, 2018)" at 5. https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/kern_oil_gas_annual_progress_report_2018.pdf.

⁴⁵ See SJVAPCD 2019 Annual Report at 10 (reporting Air District reduced 1220 tons of NO_x and 63 tons of PM₁₀, combined, under all of the Air District's emission reduction agreements); see also Draft SREIR at 4.3-111 (indicating that, in 2019, each new well is expected to emit 2.11 tons of NO_x annually, meaning that a 1220-ton reduction in NO_x is only enough to offset the emissions of 578 new wells).

the current emissions over the next 21 years” (*id.* at 4.3-122) and “fully mitigat[e] for all Project emissions” (*id.* at 4.3-116) are not supported by substantial evidence.

The County therefore should modify the Ordinance, Mitigation Measure 4.3-8, and/or the OG-ERA to mandate that new emissions from drilling and other permitted activities may not outpace the Air District’s efforts to identify, fund, and implement contemporaneous pollution-reducing projects. Under such an approach, the County would continue to collect fees from operators but would instruct them not to commence permitted activities unless or until the Air District is ready to proceed with a commensurate pollution-reducing project. If an operator is concerned about any potential wait time associated with the fee system, they also have the option of developing and instituting their own pollution-reducing projects under Mitigation Measure 4.3-8.

- Second, nothing in the Ordinance, Mitigation Measure 4.3-8, or the OG-ERA requires the County or Air District to report, with specificity, the progress made (or not made) to offset the new emissions generated by the Ordinance. The County’s annual reports only report on the amount of fee monies collected; they do not offer any details about the quantities of air pollution reduced.⁴⁶ The Air District’s annual reports do not provide any accountability either, as they: (i) do not cover the same time period as the County’s reports, making comparison difficult; (ii) do not report on progress made under the OG-ERA specifically, which the Air District lumps in with all of its other emissions reductions agreements; (iii) do not specify whether the emissions reductions are occurring within Kern County or otherwise benefit the County; and (iv) nowhere indicate how the quantities of air pollution reduced compares with the quantities of new emissions authorized—which purportedly will be mitigated to net zero.⁴⁷

The County therefore should modify the Ordinance, Mitigation Measure 4.3-8, and/or the OG-ERA to mandate quarterly reporting by the County and Air District that quantifies: the number of new permits and associated emissions, both over the duration of the reporting period and cumulatively since the 2015 Ordinance was first enacted; the quantities of pollution reduced under the OG-ERA, both during the reporting period and cumulatively since the 2015 Ordinance was enacted; and location of all pollution reduction projects funded with fee monies paid pursuant to Mitigation Measure 4.3-8. Without such a reporting mechanism, Mitigation Measure 4.3-8 is unenforceable and unworkable. Moreover, without any such reporting and accountability, the Draft SREIR’s assurance that the measure will reduce emissions “to net zero” (*id.* at 4.3-122) is not supported by substantial evidence.

- Third, even if the structure and requirements of Mitigation Measure 4.3-8 and the OG-ERA are amended to create a workable and enforceable scheme, the County’s approach still will be unsuccessful if there are not enough pollution-reducing opportunities available within the Air District’s jurisdiction to offset the new emissions authorized by the Ordinance. This

⁴⁶ See, e.g., Kern County Planning and Natural Resources Department, 2019 Annual Progress Report at 7, 9-10.

⁴⁷ See, e.g., SJVAPCD 2019 Annual Report at 6-11.

is a credible and ever-growing concern. Back in 2015, two experts separately warned that “it is more likely than not that there are simply not enough sources in the Project Area from which any meaningful further reductions can be extracted.”⁴⁸ Further, CARB—whose own emissions reduction program the Draft SREIR highlights (*id.* at 4.3-118)—has itself noted pollution reducing opportunities are increasingly scarcer “as fewer relatively uncontrolled sources will be available each year.”⁴⁹ The Air District’s inability to spend all fees monies and achieve commensurate emissions reduction since Mitigation Measure 4.3-8 and the OG-ERA were initially adopted constitutes new information that reinforces this concern.

Consequently, the Draft SREIR must assess whether sufficient pollution-reducing projects exist with the Air District’s jurisdiction to support Mitigation Measure 4.3-8. This is easily done, as the Air District—for purposes of compliance with the federal Clean Air Act—maintains detailed inventories of all the air pollution sources within its boundaries.⁵⁰ CARB has also developed “inventories for criteria air pollutant emissions from anthropogenic (i.e., not natural) sources in California, the SJV, and Kern County.” Draft SREIR at 4.3-31. The County or Air District could easily review these inventories to characterize whether there are other sources of sufficient size and appropriate type (e.g., amenable to reductions) to offset the emissions of activities authorized by the Ordinance. Indeed, the County appears to have access to these inventories already, as the Draft SREIR has projected, though 2035, emissions authorized by the Ordinance as a percentage of emissions from all sources within the County and as a percentage of emissions from all sources with the San Joaquin Valley. *Id.* at 4.3-141 to 4.3-142 (Table 4.3-40).

In the past, the County resisted conducting a feasibility analysis for Mitigation Measure 4.3-8 on the grounds that it was unnecessary because the 2015 Final EIR “commits to mitigating all Project emissions, no matter the amount.” *Id.* at 7-184 (AR008677). But the County’s experience from 2015-2020 demonstrates that such a blind commitment was not enough to actually mitigate to net zero as promised, and the County must address this significant new information and explain why it is that the County and Air District have been unable to implement and enforce Mitigation Measure 4.3-8 and the OG-ERA as promised to the public and decision makers.

- Finally, it is worth noting that the County previously took the position that mitigation to “a net zero emissions increase” was guaranteed by Mitigation Measure 4.3-8 owing to “[t]he requirement for each operator to pay for emission reductions through the OG-ERA *or to undertake direct emissions reductions.*” 2015 Final EIR at 7-184 (AR008677) (emphasis

⁴⁸ Comments on the Draft Environmental Impact Report (DEIR) for the Proposed Amendment to Kern County Zoning Ordinance Chapter 19.98 prepared by Dr. Ranajit (Ron) Sahu at 7 (AR010490); *accord* Report on Final Environmental Impact Report for Revisions to the Kern County Zoning Ordinance - 2015(C) (Focused on Oil and Gas Local Permitting) prepared by Phyllis Fox, Ph.D., PE at 29-30 (AR155637-38) (“The EIR has not demonstrated that there are sufficient opportunities to offset emissions . . . under the [emission reduction agreement] strategy”).

⁴⁹ 2015 Draft EIR, Appendix E (“Update and Report on Joint ARB/CAPCOA AB 8 Carl Moyer Program Evaluation”) at 19 (AR002943).

⁵⁰ *See, e.g.*, SJVAPCD, “2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards, Appendix B – Emissions Inventory” (November 15, 2018).

added). In other words, the County has always relied on the possibility of direct emissions reductions by operators as a backstop if the fee arrangement with the Air District did not work.

However, this alternative approach authorized by Mitigation Measure 4.3-8 cannot and will not be effective as a backstop—nor is it enforceable or workable—under the measure and OG-ERA as written. The Draft SREIR cannot credibly assert that Mitigation Measure 4.3-8 and the OG-ERA will achieve a net zero increase in emissions unless the County and Air District closely track and report the quantities of offset emissions achieved by fee monies; and the County prohibits the commencement of new operations unless or until a fee-funded reduction project is available or the operator undertakes direct emissions reduction.

Consequently, the County can and must adopt these changes.

The myriad deficiencies of Mitigation Measure 4.3-8 and the OG-ERA are further discussed in the attached expert report of Petra Pless, D.Env. (Addendum A), which is incorporated into these comments. The County must respond to these comments specifically and in their entirety, including the Pless Report.

C. Mitigation Measure 4.3-8 and the OG-ERA Can and Should Prioritize Pollution-Reducing Projects that Provide More Community Benefits.

The County should insist that fee monies collected pursuant to Mitigation Measure 4.3-8 be spent on pollution-reducing projects in Kern County, instead of allowing the District to spend the money elsewhere. The OG-ERA states that the County will actively seek pollution-reducing projects within the county, and further provides that the Air District shall prioritize funding for local projects.⁵¹ Our analysis, however, indicates that for FY 2017-18 and FY 2018-19 the Air District directed the vast majority of its emission reduction funds—for which the OG-ERA is by far the largest source—to pollution-reducing projects outside of Kern County.⁵² We believe this spending is contrary to the requirements and intention of Mitigation Measure 4.3-8 and the OG-ERA. The Draft SREIR does not describe how OG-ERA funding decisions are made, provide a full accounting of where OG-ERA fund monies have been spent to date, describe the County's outreach efforts to find pollution-reducing projects within the County, or evaluate why the County's efforts have been unsuccessful. The Final SREIR should do so. Further, the Final SREIR should identify and evaluate options to ensure that OG-ERA funds are spent locally in Kern County.

Equally importantly, the County can and should prioritize OG-ERA spending on pollution-reducing projects that directly benefit those community members who experience

⁵¹ Draft SREIR, Appendix C, OG-ERA, section 1.3(c).

⁵² We reviewed publicly available information regarding mitigation projects funded by a combination of Indirect Source Review (ISR) and voluntary emissions reduction agreement (VERA) funds (collectively "ISR-VERA" projects). Among the many VERA projects, the OG-ERA provides the vast majority of funds to the District. The OG-ERA accounted for approximately \$6.25 out of more than \$9 million, or 69.4 percent, of money collected by all VERA funds in FY 2017-18. *See* SJVAPCD 2017 Annual Report at 5-7. The OG-ERA accounted for approximately \$18.4 out of \$20.3 million, or 90.8 percent, of money collected by all VERA funds, in FY 2018-19. *See* SJVAPCD 2018 Annual Report 9-10.

disproportionate socioeconomic and pollution burdens. Mitigation Measure 4.3-8 identifies a list of pollution-reducing projects that may be supported by OG-ERA funding, including “[f]unding lower-emission equipment and processes for *local businesses, schools, non-profit and religious institutions, hospitals, city and county facilities.*” Draft SREIR at 4.3-122 (emphasis added). Rather than funding such community interests, it appears that the overwhelming majority of OG-ERA funds have been directed to projects that exclusively or primarily provide benefits for the agriculture and oil industries. For example, in FY 2017-18 and FY 2018-19, most OG-ERA funds were spent on replacing agricultural tractors, heavy-duty trucks, and wheel loaders with cleaner versions.⁵³ In comparison, during the same period, the District spent fee monies on just one community-benefitting project—replacing 18 old public school buses.⁵⁴

This failure to fund community benefit projects (except for one) is inconsistent with Mitigation Measure 4.3-8 and should have been addressed in the Draft SREIR. The Final SREIR must describe the types of projects that have been funded to date, describe the County’s outreach efforts—if any—to identify pollution-reducing projects in disadvantaged communities near oil and gas activity, and evaluate why so few community-based projects have been funded. We expect that focusing on community benefits outside of the Air District’s typical incentive programs would open up the possibility of greater reductions closer to directly impacted community residents.

The Final SREIR should identify, evaluate, and ultimately adopt changes to Mitigation Measure 4.3-8 and/or the OG-ERA to ensure that more air quality mitigation fee monies are spent on pollution-reducing projects that directly benefit the community members who face the most direct impacts from oil and gas development.

D. The Draft SREIR Fails to Adequately Analyze or Mitigate Dangerous PM_{2.5} Emissions.

The Fifth District Court of Appeal ordered the County to set aside the 2015 Ordinance and Final EIR, in part, because:

[T]he EIR inadequately addressed air quality impacts because it did not discuss the impact of a mitigation measure on fine particulate matter (PM_{2.5}) emissions or, alternatively, provide an explanation for why there is no separate discussion of the measure's impact on PM_{2.5} emissions. In addition, the mitigation measure addressing particulate matter does not provide for enforceable mitigation of PM_{2.5} emissions and the Board made no finding that mitigation of PM_{2.5} was not feasible.⁵⁵

The Draft SREIR does not address these unlawful deficiencies in the County’s treatment of PM_{2.5} or others highlighted by the Court of Appeal’s decision.

⁵³ See SJVAPCD 2017 Annual Report at 5, 7, Appendix A; SJVAPCD 2018 Annual Report at 9-10, Appendix A.

⁵⁴ SJVAPCD 2017 Annual Report at 7, Appendix A; SJVAPCD 2018 Annual Report at Appendix A.

⁵⁵ *King & Gardiner Farms, supra*, 45 Cal.App.5th at p. 830.

As an initial matter, the Draft SREIR fails as an informational document, and fails to abide by the Court of Appeal decision, because the Draft SREIR does not describe the distinct health effects of PM₁₀ and PM_{2.5}. Noting that PM₁₀ and PM_{2.5} are regulated separately by both the U.S. EPA and the Air District, the Court stated that “[a] logical deduction . . . is that the environmental impact of the two categories of particulate matter are not the same.”⁵⁶ The Draft SREIR, however, wholly fails to describe the separate health effects—describing very generally the “variety of problems” linked to “particle pollution.” Draft SREIR at 4.3-13. This description must be updated to apprise the public and decision makers of the different health consequence of PM₁₀ and PM_{2.5}—and the particularly deadly nature of PM_{2.5}.

Beyond this informational deficiency, the Draft SREIR neglects to implement any changes to the County and Air District’s mitigation regime that establishes actual, enforceable mitigation for increased PM_{2.5} emissions caused by the Ordinance. The lone change adopted by the Draft SREIR is to add to the text of Mitigation Measure 4.3-8 a list of pollutants purportedly covered by the measure, including PM_{2.5}. *Id.* at 4.3-121. But this change is inconsequential, because the County has not proposed to change the OG-ERA—which implements Mitigation Measure 4.3-8—in any way. This failure to address PM_{2.5} in the OG-ERA is runs afoul of the Court of Appeal’s decision, which made clear that Mitigation Measure 4.3-8 did not provide enforceable mitigation for PM_{2.5} because “[t]he [OG-ERA]’s operative provisions use the term ‘PM’ and, thus, do not distinguish between PM₁₀ and PM_{2.5}.”⁵⁷

Rather than amend Mitigation Measure 4.3-8 and the OG-ERA to institute a specific and enforceable requirement that the County and Air District offset the increases in PM_{2.5} air pollution attributable to the Ordinance, the Draft SREIR offers unavailing excuses:

First, the Draft SREIR asserts that “because PM_{2.5} is a subset of PM₁₀, . . . it is difficult to separate PM_{2.5} and PM_{2.5-10} emissions when creating, implementing, and tracking incentive measures that fund emission reduction projects.” Draft SREIR at 4.3-117. This is nonsense. The Court of Appeal already rejected this exact argument, noting that “the fact that other mitigation measures treat PM_{2.5} as a key target undermines any argument that it was ‘not scientifically feasible at the time of drafting to provide’ a measure in Mitigation Measure 4.3-8 that addresses PM_{2.5}.”⁵⁸

The Draft SREIR’s assertion that “it is difficult to separate PM_{2.5} and PM_{2.5-10}” (*id.* at 4.3-117) also is readily disproven by other statements in the Draft SREIR. Throughout the Draft SREIR PM₁₀ and PM_{2.5} are described and tracked separately—for a wide variety of activities and even specific types of equipment. *See, e.g.*, Draft SREIR at 4.3-85 to 4.3-86 (Tables 4.3-12 and 4.3-13, describing distinct PM₁₀ and PM_{2.5} emissions for various types of construction emissions); 4.3-88 to 4.3-91 (Tables 4.3-15 to 4.3-18, identifying distinct PM₁₀ and PM_{2.5} “Emissions Factors” per well for drilling and well stimulation); 4.3-99 (Table 4.3-22, differentiating PM₁₀ and PM_{2.5} emissions for “Routine Business Travel”); 4.3-101 to 4.3-103 (Tables 4.3-23 to 4.3-25, identifying distinct PM₁₀ and PM_{2.5} “Emissions Factors” per well for routine well operations, facility inspection, and well maintenance). The Draft SREIR also

⁵⁶ *King & Gardiner Farms, supra*, Slip Opinion at p. 71.

⁵⁷ *King & Gardiner Farms, supra*, Slip Opinion at p. 69.

⁵⁸ *King & Gardiner Farms, supra*, Slip Opinion at p. 72

discusses CARB speciation profiles and modeling tools that can differentiate PM₁₀ and PM_{2.5} emissions from many sources (*id.* at 4.3-119), and the Draft SREIR even specifies the relative PM₁₀ and PM_{2.5} reductions that might be achieved as a consequence of various “Projects that Could Be Funded by OG-ERA Fees.” *Id.* at 4.3-120 (Table 4.3-AA).

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Second, the Draft SREIR attempts to justify its approach on the grounds that “addressing PM_{2.5} and PM₁₀ emissions jointly is the approach that the SJVAPCD had consistently taken in its attainment plans and SIP strategies for achieving both the PM₁₀ and PM_{2.5} ambient air quality standards and for achieving emission reductions of both pollutants, particularly through incentive measures like the OG-ERA.” Draft SREIR at 4.3-117. To the extent the Air District has allowed this approach previously, it certainly has not been effective at “achieving . . . PM_{2.5} ambient air quality standards” (*id.*) because the Air District has yet to achieve them. *Id.* at 4.3-6.

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In any event, mere consistency with the Air District’s past practice does not meet the requirements of CEQA. “Because the emissions of PM_{2.5} exceed the threshold of significance, the mitigation measures must address this air quality impact. Because Mitigation Measure 4.3-8 does not provide an explanation for why it is infeasible for that measure to address PM_{2.5}, Mitigation Measure 4.3-8 does not comply with the CEQA requirement for fully enforceable mitigation where feasible.”⁵⁹ Here, the County has not said—and cannot credibly say—that it is infeasible to offset PM_{2.5} emissions with particularity. Indeed, the Draft SREIR emphasizes that the County “expect[s] that the OG-ERA will achieve PM_{2.5} reductions from the emission reduction projects funded by the OG-ERA to mitigate for Project emissions.” Draft SREIR at 4.3-120.

But this third excuse—that the County does not require, but still “expects” full mitigation of the Ordinance’s PM_{2.5} emissions—likewise fails. The Court of Appeal squarely rejected it, stating:

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[T]he County and Oil Associations predict that implementation of the emission-offset projects under the fee-based mitigation program created under MM 4.3-8 will offset PM_{2.5} emissions attributed to the Ordinance. . . . Yet, the County and Oil Associations have not described how the oil and gas reduction agreement between the County and Air District could be *enforced* to require the offset of PM_{2.5} emissions. Therefore, we conclude MM 4.3-8 and the related oil and gas emission reduction agreement . . . does not provide enforceable mitigation of the project’s PM_{2.5} emissions.⁶⁰

Just like 2015 Final EIR that was set aside by the Court of Appeal, the Draft SREIR unlawfully fails to adopt feasible and enforceable mitigation measures to address PM_{2.5}.

The Draft SREIR’s complete failure to address PM_{2.5} also is discussed in the attached expert report of Petra Pless, D.Env. (Addendum A), which is incorporated into these comments. The County must respond to these comments specifically and in their entirety, including the Pless Report.

⁵⁹ *King & Gardiner Farms, supra*, Slip Opinion at p. 73.

⁶⁰ *King & Gardiner Farms, supra*, Slip Opinion at p. 73.

V. The County Must Revise Its Cumulative Health Risk Assessment.

The Court of Appeal concluded that Kern County violated CEQA by failing to recirculate the 2015 Final EIR after it released a lengthy cumulative health risk assessment just a few days before the Board of Supervisors voted to approve the Ordinance. Consequently, the Court directed that the cumulative health risk assessment must be recirculated in conjunction with any revised EIR.⁶¹ Further, the Court cautioned that the cumulative health risk assessment must not be treated as a mere “post hoc justification” of the earlier conclusions reached by the EIR regarding the Project’s health impacts.⁶²

Now that the County’s cumulative health risk assessment (Draft SREIR, Appendix B) has been made more fully available for review by the public, many critical errors are apparent that mask the true health risks posed by close proximity to multiple oil and gas wells. For example:

- the emissions rate data that were used to scale the model results were not properly documented;
- in developing their exposure assessment, the modelers at Environmental Compliance Solutions, Inc. did not use AERMINUTE, which is highly recommended by U.S. EPA, to reduce the number of calm winds—which caused an *underestimation* of impacts;
- extremely high temperatures (912F) and exit velocities (159 mph) were modeled for diesel equipment exhaust, leading to very high plume rise—and *implausibly low concentrations*;
- modeled wells were placed in rings at distances of approximately 0.2 mile, 1/3 mile, 1/2 mile, and 1 mile and *not* at 1/8 mile, 1/4 mile, 3/4 mile, and 1 mile as stated in the cumulative health risk assessment—*again, leading to artificially lower concentration impacts*; and
- lower emission rates were used for the closest ring of 12 sources as compared to the other 36 modeled sources—for no reason that is explained.

These and other flaws in the County’s cumulative health risk assessment are discussed further in the attached expert memorandum of Dr. H. Andrew Gray (Addendum B), which is incorporated into these comments. The County must respond to these comments specifically and in their entirety, including the report prepared by Dr. Gray.

VI. The County Proposed Arbitrary, Inconsistent, and Unenforceable Setback Requirements in the Proposed Ordinance and the Draft SREIR.

The Ordinance contains multiple setback requirements, all of them entirely inadequate to protect public health. A minimal setback of 210 feet is required at section 19.98.060(A) of the

⁶¹ *King & Gardiner Farms, supra*, Slip Opinion at pp. 130-32.

⁶² *Id.* at p. 131.

Ordinance, and three Mitigation Measures (4.3-5, 4.12-1, and 4.12-2) also call for setbacks. As explained in section VIII.A, reams of recent studies have confirmed, over and over, significant health risk associations even at distances many times greater than the miniscule distance(s) the County is requiring.

Even aside from the overwhelming volume of scientific evidence concerning setbacks that the Draft SREIR does not address, the County's own analysis is facially insupportable. The health studies relied upon by the County are deeply flawed, for reasons explained by King & Gardner Farms' expert Dr. Phyllis Fox in her 2015 and more recent analyses. The analysis supporting the varying setback requirements fails even to consider all of the relevant health information contained in the Draft SREIR. Moreover, the setback distances and measurement requirements vary in magnitude and implementation requirements between the 210-foot setback in the Ordinance and the differing setbacks required in the three Mitigation Measures, with no explanation provided of how these varying requirements work together.

Other jurisdictions are increasingly moving in the direction of 2,500 foot setbacks—including most recently Ventura County, which just voted to put such a setback in place. The County should follow their lead and scrap its insufficient and poorly-crafted setbacks and the outdated analysis supporting them in favor of requirements that are clearly laid out, based in science, and genuinely protective.

VII. The Draft SREIR's Analysis and Mitigation of Water Supply Impacts Is Inadequate.

A. If Adopted, the County's Analysis of Water Supply Mitigation Measures Would Violate CEQA.

CEQA requires the adoption of mitigation measures to avoid or reduce significant environmental damage whenever feasible.⁶³ If an EIR identifies significant environmental impacts, the agency may approve the project only if it makes a finding either that changes have been made to the project to mitigate or avoid the significant impacts, or that mitigation is infeasible and overriding considerations support approval of the project.⁶⁴ The basic purpose of a mitigation measure is to "prevent" significant environmental impacts.⁶⁵ Thus, any feasible "measures must be in place" by "the point where activity will have a significant adverse effect on the environment."⁶⁶

Like the 2015 FEIR, the Draft SREIR anticipates that oil and gas operations permitted by the Ordinance will have a significant adverse impact on already-limited domestic- and irrigation-quality water supplies. Draft SREIR, Appendix D, Supplemental Water Supply Baseline Technical Report (2020) ("App. D"), at pp. 57-58. The Draft SREIR does not revise the FEIR's

⁶³ See Pub. Resources Code, §§ 21002, 21081, subd. (a); CEQA Guidelines, § 15002, subds. (a)(2), (3).

⁶⁴ Pub. Resources Code, § 21081.

⁶⁵ CEQA Guidelines, § 15002, subd. (a)(3).

⁶⁶ *POET, LLC v. Cal. Air Resources Bd.* (2013) 218 Cal.App.4th 681, 738, citing Pub. Resources Code, § 21080.5, subd. (d)(3)(A).

estimate that, by 2035, oil and gas operations will consume 11,760 acre-feet (3.83 billion gallons) of domestic- and irrigation-quality water each year—enough for over 23,000 households. *Id.* at p. 58.⁶⁷

Unlike the 2015 FEIR, which adopted vague and deferred mitigation measures that the Court of Appeal struck down, the Draft SREIR declines to adopt any mitigation measures for these water supply impacts, finding any potential such measures infeasible. See Draft SREIR at 4.17-80.⁶⁸ This finding and its supporting reasoning, if adopted, would violate CEQA. First, the County improperly relies on the Sustainable Groundwater Management Act to try to relieve itself of its duty to mitigate under CEQA. Second, the County does not consider the most obvious facially feasible mitigation measure—directly limiting oil and gas drilling—and it provides no legitimate evidence or justification for the conclusion that mitigation measures that might indirectly decrease oil and gas drilling are infeasible. Third, the County ignores a wealth of feasible, easily accessible potential mitigation measures.

1. The Sustainable Groundwater Management Act Does Not Relieve the County of Its Duty to Mitigate Water Supply Impacts.

The Legislature enacted the Sustainable Groundwater Management Act⁶⁹ (SGMA) in 2014 to control overdraft and regulate the use of groundwater. Under SGMA, local and regional authorities in certain water basins and subbasins must form Groundwater Sustainability Agencies (GSAs) that are responsible for developing and implementing Groundwater Sustainability Plans (GSPs) to provide for the sustainable long-term management of groundwater.⁷⁰ If GSAs wish, they may adopt more granular “management area plans” within the region covered by a single GSP.⁷¹ SGMA requires GSAs in basins designated “high priority” to achieve sustainability by 2040, and those in basins designated “medium priority” to achieve sustainability by 2042.⁷²

Eight completed GSPs and fifteen subsidiary management area plans cover high-priority areas that have at least some overlap with the Project Area.⁷³ These plans call for a range of actions over the next twenty years, rather than for immediate implementation. They propose many projects and management actions that the GSAs retain the option to implement—as feasible and as needed—to achieve sustainability by 2040.⁷⁴

⁶⁷ Cal. Dept. of Conservation, SB 1281 Water Report Summary, at p. 4 (Aug. 12, 2015) [AR 034375] (“An acre-foot is equivalent to 325,900 gallons, or roughly enough water to supply two typical households for a year.”).

⁶⁸ The SREIR repeats essentially the same discussion of water supply mitigation in at least five places: pages 4.9-184-4.9-190, 4.17-75-4.17-80, and App. D at pages 61-66, 69-75, and 77-82. These comments cite only the discussion in section 4.17.

⁶⁹ Wat. Code, § 10720 et seq.

⁷⁰ *Id.*, §§ 10720.7, subd. (a)(1), 10723, subd. (a).

⁷¹ Cal. Code Regs., tit. 23, § 354.20.

⁷² See Wat. Code, §§ 10720.7, subd. (a)(2), 10727.2, subd. (b)(1).

⁷³ The completed GSPs and management area plans that intersect with the Project Area are attached. The Project Area also overlaps with the medium-priority White Wolf subbasin, which will be covered by a GSP by 2022.

⁷⁴ See, e.g., Kern Groundwater Authority, Groundwater Sustainability Plan, at Table 4-1 (listing projects, the majority of which are in the future).

The Draft SREIR relies on SGMA as justification for declining to adopt any mitigation measures that would reduce the Ordinance’s significant impacts to water supplies. The Draft SREIR provides three purported reasons that SGMA renders any mitigation measures infeasible and thus relieves the County of its CEQA obligations. None are legitimate.

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First, the Draft SREIR notes that the County, by choice, is not part of a GSA, and it concludes this means the County need not mitigate water supply impacts because “[t]he GSAs in the Project Area have exclusive jurisdiction for sustainable groundwater management under SGMA.” Draft SREIR at 4.17-78. The Draft SREIR provides no citation for this statement of law, and no similar statement appears in SGMA. To the extent the County wishes to conclude that SGMA, coupled with the County’s decision not to participate in drafting a local GSP, absolves the County of responsibility to consider groundwater under CEQA, it is incorrect. Nothing in SGMA says the County may not take action to alter or improve groundwater conditions, as would be required to relieve the County of its CEQA obligations.⁷⁵ In fact, SGMA allows that many of a GSA’s most significant powers—such as the power to regulate groundwater extractions—must be exercised in a manner “consistent with the applicable elements of the city or county general plan, unless there is insufficient sustainable yield in the basin to serve a land use designated in the city or county general plan.”⁷⁶ This shows that, although SGMA may give the GSAs ultimate authority to regulate groundwater, counties still have authority to regulate in ways that impact groundwater conditions. Indeed, the entire Ordinance would otherwise be *ultra vires*, as the County admits the Ordinance will have a significant adverse impact on groundwater in the basin. If the County has jurisdiction to cause harms to groundwater conditions, then it certainly has jurisdiction to mitigate them.

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Second, the Draft SREIR concludes it need not develop its own mitigation measures because “professional geologists and engineers” are developing and considering the feasibility of SGMA projects that could mitigate groundwater impacts, whereas “[t]he County has substantially less capacity to identify and implement mitigation measures.” Draft SREIR at 4.17-78. This discussion elides a crucial point: SGMA is not CEQA. As described above, SGMA requires the GSAs to ensure the basins and subbasins in the Project Area are managed sustainably by 2040 or 2042. CEQA requires the County to adopt measures to mitigate the Ordinance’s significant environmental impacts to the maximum extent feasible, and these “measures must be in place” by “the point where activity will have a significant adverse effect on the environment.”⁷⁷ The GSAs’ obligations under SGMA and the County’s obligations under CEQA are thus entirely different. GSAs in the region are engaging in planning to allow for a long-term shift toward sustainable groundwater management.⁷⁸ There is no reason to believe that such planning would render redundant the County’s CEQA obligation to mitigate the immediate

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⁷⁵ Cf. *City of San Diego v. Bd. of Trustees of Cal. State Univ.* (2015) 61 Cal.4th 945, 957 [“a lead agency may disclaim responsibility [for mitigation under CEQA] ‘only when the other agency said to have responsibility has exclusive responsibility’”].

⁷⁶ Wat. Code, § 10726.4.

⁷⁷ *POET, LLC*, 218 Cal.App.4th at p. 738, citing Pub. Resources Code, § 21080.5, subd. (d)(3)(A).

⁷⁸ See, e.g., Kern Groundwater Authority, Groundwater Sustainability Plan, at p. 218 (showing GSP implementation will have little impact on change in groundwater storage until the 2030s).

harms that the Ordinance will cause. Thus, the County must fulfill its distinct obligations under CEQA.

Third, the Draft SREIR expresses concern that any mitigation measures it develops could conflict with the development of SGMA projects that rely on produced water. Draft SREIR at 4.17-78-4.17-80. The Draft SREIR views this potential conflict as essentially precluding any action at all: it says that mitigation measures that involve reuse of produced water might conflict with similar SGMA projects (*id.* at p. 4.17-78), whereas mitigation measures that limit oil and gas drilling and thus might decrease the availability of produced water also potentially conflict with SGMA (*id.* at pp. 4.17-79-4.17-80). When considered in the context of the Ordinance as a whole, these concerns are absurd. In approving this Ordinance without mitigation measures, the County by its own admission imposes significant adverse impacts on groundwater storage in direct contradiction to the goals of SGMA.⁷⁹ In that sense, this Ordinance will conflict with and adversely affect the GSAs' work to achieve sustainable groundwater management. But, in the County's telling, it is not the Ordinance itself but rather the mitigation measures that potentially conflict with SGMA and are thus infeasible. There is no basis in law or reason for this conclusion.

The claim that decreased oil and gas drilling would conflict with SGMA because it would decrease the availability of produced water is particularly unfounded. As the Draft SREIR repeatedly acknowledges, oil and gas drilling uses groundwater and thus causes an assured and significant adverse impact on groundwater supplies. E.g., Draft SREIR at 6-3. And, as the Draft SREIR repeatedly acknowledges, it does not appear that any SGMA project involving produced water reuse is being implemented yet and it is unclear—based on reliability and other variables—whether these projects will ever be implemented. E.g., Draft SREIR at 4.17-80. On balance, there is no credible argument that decreasing oil and gas drilling is counter to SGMA's goal of achieving groundwater sustainability. Moreover, the County does not argue that anything in SGMA precludes or even discourages such mitigation.

In sum, the Draft SREIR's determination that the County can use SGMA as a shield to avoid adopting otherwise feasible mitigation measures is unsupported by substantial evidence and contrary to law.

⁷⁹ See, e.g., SREIR at 6-3 (“[T]he Project’s potential to substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of a groundwater basin will be significant and unavoidable. In addition, the Project’s potential to conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan will be significant and unavoidable. Moreover, the Project would cause a significant and unavoidable impact with respect to its potential to make a cumulatively considerable contribution to cumulative impacts to groundwater elevations and aquifer volumes.”).

2. *The Draft SREIR Does Not Establish that It Is Infeasible to Mitigate Water Supply Impacts.*

i. *The County Should Consider Mitigating Water Supply Impacts by Decreasing Oil and Gas Drilling.*

The cause of the Ordinance's significant adverse impacts to water supply is increased oil and gas drilling, so the most obvious potential mitigation measure is one that would limit drilling in the County. Although the County does not consider a mitigation measure that decreases drilling directly, it considers two measures that it predicts would decrease drilling indirectly. See Draft SREIR at 4.17-78-4.17-80. In evaluating these measures, it appears to find that decreasing drilling in the County to a degree beyond what the Ordinance allows would be infeasible. *Ibid.* This finding is unsupported. In its final SREIR, the County should consider a mitigation measure that directly limits drilling, such as an annual permit cap, and it must explain why a mitigation measure that results in decreased drilling is infeasible.

The Draft SREIR relies on two justifications when discussing the infeasibility of mitigation measures that might decrease oil and gas drilling. See Draft SREIR at 4.17-79-4.17-80. First, the County concludes decreased oil and gas drilling could conflict with SGMA projects involving produced water. Draft SREIR at 4.17-79-4.17-80. For the reasons discussed above, this concern is meritless. Second, the County concludes, without any further discussion, that “[a] reduction in oil and gas activities would . . . generate adverse economic and social consequences in the County.” Draft SREIR at 4.17-80. It is not clear what the County bases this conclusion on, and the conclusion is contradicted by the evidence.⁸⁰

When discussing direct limitations on oil and gas drilling—which the Draft SREIR does only when it briefly dismisses an alternative that would set a cap on permits issued—the Draft SREIR expresses concern that limiting permits might expose the County to takings liability. Draft SREIR at 6-15. However, “California courts have long rejected claims by property and mineral rights owners that zoning ordinances prohibiting oil and gas drilling effect a taking of private property.”⁸¹ As an initial matter, courts do not recognize a takings claim where the activity is a nuisance or noxious use that poses a health and safety risk to nearby residents.⁸² Here, the Draft SREIR acknowledges a number of significant and unavoidable impacts that squarely qualify the projects authorized under the Ordinance as nuisances. Moreover, an operator would likely be unable to meet either of the legal standards for a successful takings claim. An industry plaintiff would have to show either that they had been deprived of the entire economic value of the property,⁸³ or that they could satisfy the three-prong test from *Penn Central*

⁸⁰ See sections IX.A, IX.B.2, *infra*.

⁸¹ Heather Minner & Peter Broderick, “Local Control of Oil and Gas Operations: Getting a Handle on Fracking and Cyclic Steaming Through Land Use Prohibits, Moratoria, Discretionary Permits, and Citizen Initiatives,” *Environmental Law News*, Vol. 23, No. 2 (Fall 2014), citing *Friel v. County of Los Angeles* (1959) 172 Cal.App.2d 142, 148, 157; *Beverly Oil Co. v. City of Los Angeles* (1953) 40 Cal.2d 552, 559.

⁸² See *Keystone Bituminous Coal Ass’n v. DeBenedictis* (1987) 480 U.S. 470.

⁸³ *Lucas v. S.C. Coastal Council* (1992) 505 U.S. 1003, 1015.

Transportation Co. v. City of New York that looks at 1) the character of the regulation, 2) the economic impact on the plaintiff, and 3) interference with distinct investment-backed expectations.⁸⁴

Landowners could not demonstrate that limits on drilling deprive them of the entire economic value of their property. First, other land uses—and their associated economic values—would remain available. This principle applies even though mineral rights may be owned separately from the surface parcel.⁸⁵ Second, a temporary delay in the ability to get a permit cannot deprive a landowner of the entire economic value of property because the property retains future value associated with future drilling.⁸⁶ Third, as stated above, even in the exceptional instance where a law or regulation deprives a property owner of all value, courts will still decline to find a taking if the restricted activity is a nuisance.⁸⁷

Landowners also would be unlikely to succeed under the *Penn Central* three-prong test. First, as above, there is no taking when the restricted activity is a nuisance.⁸⁸ Second, even if a court were to find that oil and gas operations do not rise to the level of a nuisance, a taking is still unlikely when the “character” of government action has a “harm-preventing purpose.”⁸⁹ Third, the *Penn Central* analysis is highly fact-specific, and any claimant would need to demonstrate the economic impact and its investment-backed expectations in court. This is a heavy burden, as courts have long recognized that “mere diminution in the value of property, however serious, is insufficient to demonstrate a taking.”⁹⁰ Fourth, oil and gas extraction is inherently speculative. Not only are production volumes highly uncertain, global price volatility undermines any claim that an oil and gas operator was deprived of reasonable expectation of investment returns. Fifth, there is no unconstitutional taking where an industry is heavily regulated and should expect that regulations will change and sometimes restrict the exact operations they intend.⁹¹

Also, as in its analysis of takings liability in the context of setbacks, the Draft SREIR failed to consider other available means to minimize takings liability, such as a limited savings

⁸⁴ *Penn Central Transportation Co. v. City of New York* (1978) 438 U.S. 104, 124.

⁸⁵ See *Machipongo Land and Coal Co. v. Commonwealth* (Pa. 2002) 799 A.2d 751, 769-70 (rejecting a request to consider the diminution of value in mineral and surface estates alone, even though could be severed and held separately); see also *Penn Cent. Transp. Co.*, 438 U.S. at 130 (“‘Taking’ jurisprudence does not divide a single parcel into discrete segments and attempt to determine whether rights in a particular segment have been entirely abrogated.”).

⁸⁶ See *Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency* (2002) 535 U.S. 302, 332.

⁸⁷ In *Lucas*, the Supreme Court confirmed once again that all property is subject to “background principles of the State’s law of property and nuisance[.]” 505 U.S. at p. 1029.

⁸⁸ *Appollo Fuels, Inc. v. United States* (Fed. Cir. 2004) 381 F.3d 1338, 1347 (there is no taking where there is a nuisance, regardless of other factors); see also *Creppel v. United States* (Fed. Cir. 1994) 41 F.3d 627, 631 (same).

⁸⁹ *Rose Acre Farms, Inc. v. United States* (Fed. Cir. 2009) 559 F.3d 1260, 1281.

⁹⁰ *Concrete Pipe & Products of Cal., Inc. v. Construction Laborers Pension Trust* (1993) 508 U.S. 602, 645, citing *Village of Euclid v. Ambler Realty Co.* (1926) 272 U.S. 365, 384 (75 percent diminution); *Hadacheck v. Sebastian* (1915) 239 U.S. 394, 405 (92.5 percent diminution).

⁹¹ *Ruckelshaus v. Monsanto Co.* (1984) 467 U.S. 986.

clause, an administrative process for granting limited exemptions or mechanism for amortization in the narrow instances where a landowner could otherwise establish a taking.⁹²

In light of these considerations, the County's concerns about unconstitutional takings claims are meritless and cannot constitute substantial evidence that limiting drilling is infeasible.

In sum, the County should consider limiting drilling as a water supply mitigation measure (in addition to as an alternative) in its final SREIR. The County should particularly consider limiting EOR drilling, which "account[s] for the largest share of oil and gas M&I water use." 2015 FEIR, at p. 4.17-58. Moreover, to the extent that the County considers measures that would have the indirect impact of decreasing drilling, it must adequately analyze those indirect impacts and may not rely on SGMA, speculative litigation, and broad, conclusory statements to support an infeasibility finding.

ii. *The Draft SREIR Fails to Consider Myriad Other Feasible Measures to Mitigate Impacts to Groundwater.*

The Draft SREIR limits its consideration of mitigation measures to reduce significant groundwater supply impacts to those that facilitate reuse of produced water. The final SREIR must consider a far broader range of mitigation measures.⁹³

First, there are hundreds of projects and management actions that are discussed in SGMA plans for the Project Area as methods of helping achieve sustainable groundwater management.⁹⁴ Many of these projects and management actions are, in essence, water supply mitigation measures—they are actions governmental agencies can take to increase groundwater storage. GSAs, however, are not under a legal obligation to achieve sustainable groundwater management before 2040 at the earliest, so many projects and management actions will not be implemented in the immediate future. A large portion of the projects and management actions require funding or other action that is well within the capacity of the County, particularly if industry were to pay fees. These specific measures have already been vetted by GSAs, so they are unlikely to be "facially infeasible," as would be required for the County not to consider them.⁹⁵

It is not at all clear why the Draft SREIR does not propose accelerating or expanding upon one of these projects or management actions or something similar. Indeed, it is implausible

⁹² See section VIII.A.3, *infra*.

⁹³ See *Residents Against Specific Plan 380 v. County of Riverside* (2017) 9 Cal.App.5th 941, 970 ["an adequate EIR must respond to specific suggestions for mitigating a significant environmental impact unless the suggested mitigation is facially infeasible"].

⁹⁴ See Buena Vista Water Storage District GSA Final Groundwater Sustainability Plan, § 7 (Jan. 2020); Henry Miller Water District Groundwater Sustainability Plan, § 4 (Jan. 29, 2020); Kern Groundwater Authority Groundwater Sustainability Plan, § 4 (Jan. 2020); Kern River Groundwater Sustainability Plan, § 7 (Jan. 2020); Olcese Groundwater Sustainability Plan, §§ 17-18 (Jan. 2020); Cuyama Basin Groundwater Sustainability Plan, § 7 (Dec. 2019); Tulare Lake Subbasin Groundwater Sustainability Plan, § 6 (Jan. 2020); Delano-Earlimart Irrigation District Groundwater Sustainability Plan, § 5 (Jan. 2020). The fifteen management area plans prepared under the Kern Groundwater Authority GSP are attached and contain further discussion of projects that may be implemented pursuant to that GSP.

⁹⁵ *Residents Against Specific Plan 380*, 9 Cal.App.5th at p. 970.

that the GSAs in the area are capable of developing measures that will improve the long-term water budget of the Kern County Subbasin—only one of the subbasins overlying the Project Area—by 421,000 acre-feet per year (AFY) (Draft SREIR, App. D, at p. 26), while the County cannot come up with measures to offset a single acre-foot of oil and gas use of domestic- and irrigation-quality water. This failure is particularly galling after the GSAs have essentially already done the work of analyzing potential mitigation measures for the County.

Second, the final SREIR must consider the adoption of demand-reduction measures. This should include discussion of the following:

- **Increase oil and gas use of produced water:** If the County cannot otherwise mitigate the Ordinance’s significant adverse impacts, it must use produced water for oil and gas activities to the greatest extent feasible. The Draft SREIR acknowledges that oil and gas operators “may be able to substitute additional produced water for M&I supplies to conduct certain oil field activities, including EOR and steam production.” Draft SREIR at 4.9-168. There should already be significant analysis of this potential reuse pursuant to the work that has been done under Mitigation Measures 4.17-2 and 4.17-3 of the 2015 EIR. Draft SREIR at 4.17-81.⁹⁶ This analysis should be included in the SREIR.⁹⁷ Given the obligation to mitigate to the extent feasible, it is not clear why the Draft SREIR does not propose maximizing reuse, or at least provide substantial evidence demonstrating that additional use would be infeasible.
- **Increase oil and gas use of reclaimed water:** As in the case of produced water, the County must use reclaimed water for oil and gas activities to the greatest extent feasible. The 2015 FEIR considered increased use of reclaimed water to be potentially feasible, and pursuant to Mitigation Measure 4.17-4 of the 2015 FEIR the County should now have additional information regarding that potential use. Draft SREIR at 4.17-81. That information should be included in the SREIR,⁹⁸ and the County should evaluate the feasibility of mitigating with reclaimed water.

⁹⁶ See also Kern County Oil and Gas Permitting Program Annual Progress Report at p. 10 (Dec. 2019), https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/kern_oil_gas_annual_progress_report_2019.pdf (“Industry representatives have submitted a memorandum identifying the five biggest industry users of municipal and industrial water by volume. These companies are: Chevron, Freeport-McMoRan Oil & Gas, Aera Energy, LINN Energy, and California Resources Corporation. The estimated amount of combined M&I water injected was 8,000 acre-feet/year. The industry has committed to working together to identify new measures to reduce M&I water by 2020. Staff will continue to update the report as necessary.”); Kern County Oil and Gas Permitting Program Annual Progress Report at p. 9 (Dec. 2018), https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/kern_oil_gas_annual_progress_report_2018.pdf (same); Kern County Oil and Gas Permitting Program Annual Progress Report at p. 6 (Dec. 2017), https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/kern_oil_gas_annual_progress_report_2017.pdf (same); Kern County Oil and Gas Permitting Program Annual Progress Report at p. 6 (Dec. 2016), https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/kern_oil_gas_annual_progress_report_2016.pdf (same).

⁹⁷ See section IX.B.1, *infra*.

⁹⁸ See section IX.B.1, *infra*.

- **Consider other demand reduction measures within the oil and gas industry:** Pursuant to mitigation measure 4.17-2 from the 2015 FEIR, the five biggest oil industry users of municipal and industrial water have been working together to develop and implement a plan identifying new measures to reduce municipal and industrial water use. Draft SREIR at 4.17-81. The SREIR should discuss the results of this process,⁹⁹ and should consider any potentially feasible methods of reducing municipal and industrial water use within the oil and gas industry.
- **Consider demand reduction measures more generally:** The SREIR should consider other demand reduction measures such as land purchase¹⁰⁰ or incentive programs for landowners to fallow their land or to convert to less water-demanding crops.¹⁰¹ Although some such measures are included as projects in GSPs and management area plans, these measures are often inadequate in scope and significantly delayed.¹⁰² The immediate implementation of demand-reduction measures is within the power of the County and would ameliorate at least some of the Ordinance's most harmful and inequitable water supply impacts, such as its contribution to domestic wells going dry in disadvantaged communities.¹⁰³

Third, the County should consider a measure or measures that would directly mitigate the harms associated with domestic wells going dry as a result of decreased groundwater storage. The GSPs in the area failed to adequately grapple with this harm, so the County could mitigate water impacts by developing a drinking water protection program, such as the one described in SGMA comments by Leadership Counsel for Justice & Accountability, Self-Help Enterprises, and Community Water Center, to protect residents against dry wells.¹⁰⁴

Fourth, the County should consider steps it can take to facilitate accurate measuring of oil and gas' and others' use of groundwater through metering.¹⁰⁵ Such metering will enable higher quality monitoring and mitigation of the Ordinance's impacts.

⁹⁹ See section IX.B.1, *infra*.

¹⁰⁰ See, e.g., SSJMUD Management Area Plan, at pp. 193-94; Wheeler Ridge-Maricopa Water Storage District Management Area Plan, Table PMA-1, at p. 1.

¹⁰¹ See, e.g., Arvin-Edison Water Storage District Management Area Plan, Table PMA-1, at p. 5.

¹⁰² See Letter from Jasmine del Aguila and Amanda Monaco, Leadership Counsel for Justice and Accountability, to Department of Water Resources and State Water Resources Control Board, Re: Recommendations for DWR and SWRCB Action Regarding the Kern Groundwater Authority Groundwater Sustainability Plan at pp. 26-28 (June 3, 2020).

¹⁰³ *Ibid.* See also Water Foundation, Groundwater Management and Safe Drinking Water in the San Joaquin Valley, at pp. 9-12 (June 2020), <https://waterfdn.org/wp-content/uploads/2020/06/Groundwater-Management-and-Safe-Drinking-Water-in-the-San-Joaquin-Valley-Brief-6-2020.pdf> (showing domestic wells in the Project Area likely to go dry under current GSPs).

¹⁰⁴ See Letter from Jasmine del Aguila and Amanda Monaco, Leadership Counsel for Justice and Accountability, to Department of Water Resources and State Water Resources Control Board, Re: Recommendations for DWR and SWRCB Action Regarding the Kern Groundwater Authority Groundwater Sustainability Plan at Appendix B (June 3, 2020).

¹⁰⁵ *Id.* at p. 28.

B. The County Fails to Analyze the Impacts of Using Oil and Gas Wastewater for Irrigation and Other Purposes, and the Impacts of Storing Oil and Gas Wastewater.

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The County assumes that the amount of produced water, or oil and gas wastewater (oil wastewater), that would result from the Ordinance will increase by 37% to 121,412 Acre-feet (AF) in 2035, from 2012 (88,812 AF). Draft SREIR at 4.9-165. The County provides that it would consider feasible revisions or “new feasible measures, that would reduce the Project’s impacts on regional water supplies, such as by using additional amounts of oil and gas produced water to meet regional irrigation or other applicable water demand.” See Draft SREIR at 2-4; 3-9.

It appears that the “reuse” of oil wastewater for irrigation is currently taking place in the Project Area, and that GSPs and management area plans may expand that use. See Draft SREIR at 4.17-76.¹⁰⁶ The County estimates that agricultural “reuse” of produced water could increase to 50,419 AF by 2035 from 38,658 AF in 2012. Draft SREIR at 4.9-166 to 167 (Table 4.9-27). Although the County does not estimate the quantity of oil wastewater that could be used for domestic purposes by 2035, it does state that between 2015 and 2017, oil and gas operators sold or transferred an average of 8,991 AF of produced water per quarter, or 35,964 AFY, *for domestic use*. Draft SREIR at 4.17-76. The County concludes that this “new information” suggests that oil and gas activities could provide “sufficient new supplies” to offset their anticipated use of domestic and irrigation-quality water. Draft SREIR at 4.17-76.

Yet, the County completely fails to analyze how the use of oil wastewater for irrigation and domestic use could impact the environment and impose related health impacts. Nothing in the Draft SREIR’s “agricultural resources” and “hydrology and water quality” sections discuss these potentially significant impacts. The County also fails to do such an analysis in the “utilities and service systems” section of the Draft SREIR. For instance, the County states only that since the West Kern Water District Management Area Plan provides that “the regulation of oil produced water under SGMA is not fully clear at this time,” the “evaluation of oil produced water” will be reevaluated during the first five-year update of the plan. Draft SREIR at 4.17-73.

The County must analyze the water quality and related health impacts of “re-using” oil wastewater because it contains hundreds of pollutants and chemical compounds that could be harmful to both the environment and human health. A 2016 study found that oil wastewater slated for crop irrigation and livestock water included 173 chemical compounds, including ethylbenzene, xylene, and sulfuric acid.¹⁰⁷ The water quality assessment that the 2015 FEIR relies on provides that “waste fluid generated from below the fresh water zone typically contains

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¹⁰⁶ Cawelo Water District, Recycled Water Oilfield Produced Water Program, <https://www.cawelowd.org/recycled-produced-water/>.

¹⁰⁷ Shonkoff, S.B.C. et al., Preliminary Hazard Assessment of Chemical Additives Used in Oil and Gas Fields that Reuse Their Produced Water for Agricultural Irrigation in The San Joaquin Valley of California, Technical Report, PSE Healthy Energy (2016) (“Shonkoff 2016”), http://www.chc4you.org/wp-content/uploads/2017/01/PSE_Produced-Water_Ag_Disclosures_FINAL.pdf.

petroleum hydrocarbons, select metals (e.g., boron), and /or high TDS.” 2015 FEIR, Appendix S-1, Revised Water Quality Assessment Report, at 43.

The County acknowledges that produced water is not equal in quality to M&I water. In fact, the County points out that oil and gas wastewater may cause oil and gas equipment corrosion, damage, and potential chemical reactions. Draft SREIR at 4.9-168, and that “[c]ertain oil and gas exploration and production activities require the use of higher quality water supplies than can typically be contained from produced water sources.” Draft SREIR at 4.9-17; 4.9-19. We note that it is particularly ironic that the County does not wish to use oil wastewater in recognition of its likely damage to oil equipment, but does not analyze how oil wastewater would harm the environment or the health and safety of its residents.

The County also discusses the quantity of produced water that could be disposed into surface ponds and Class II aquifers under this Ordinance (Draft SREIR at 4.9-166 to 167 (Table 4.9-27), but does not actually analyze the water quality impacts of these practices. The County only notes, in its hydrology and water quality chapter (section 4.9), the numerous uncertainties in impact that future water demand could have on surface and groundwater quality. *See* Draft SREIR at 4.9-165. The 2015 FEIR’s Revised Water Assessment did not analyze the potential water quality impacts from reusing produced water for irrigation or other purposes. 2015 FEIR, Appendix S-1, Revised Water Quality Assessment Report, at 67, 7-19 to 7-23 (Table 7-1).

The County also does not otherwise adequately analyze the impacts that oil wastewater storage or disposal could have on water quality or agricultural resources, in the agricultural resources chapter of the Draft SREIR. The County acknowledges that pits and sumps that collect produced water and other drilling wastes “may increase the risk of exposure of agricultural soils to potentially hazardous chemicals and materials.” Draft SREIR at 4.2-35. The County mentions only two scenarios in which oil wastewater could have some water quality impact: spills from the removal of produced water from pits and sumps, and an even more vague statement on other indirect impacts such as “sedimentation onto agricultural land, and accidental release of hazardous materials.” Draft SREIR at 4.2-35. Again, the County does not actually analyze these potential impacts and whether they would be significant.

Moreover, the County fails to and must analyze the more likely impacts of oil wastewater storage on groundwater quality, air quality, soil quality, and indirect health impacts. These include the increased health risks and impacts from drinking water or consuming agricultural products that are contaminated with chemicals known to be present in produced water. Surface disposal of oil wastewater can pollute groundwater.¹⁰⁸ For instance, an oil wastewater site near Bakersfield, which disposed of close to 200,000 gallons of oil wastewater per day, contaminated the groundwater underneath with chloride, boron, and TDS at levels seven to nineteen times the allowable limits.¹⁰⁹ Similarly, the County must analyze how the Ordinance will result in water

¹⁰⁸ Clean Water Action, Still in the Pits: Update on Oil and Gas Wastewater Disposal in California, <https://www.cleanwateraction.org/sites/default/files/docs/publications/Still%20In%20the%20Pits%20-%20March%202016.pdf>.

¹⁰⁹ *See* John Cox, Facility Operators Wins Time, But Appeal Awaits, The Bakersfield Californian, September 6, 2015, https://www.bakersfield.com/news/groundwater-contamination-facility-operator-wins-time-but-appeal-awaits/article_36673931-50fb-5650-9dc3-879a45c26b96.html/.

quality and related health impacts from oil wastewater injection, especially since it already recognizes that spills could occur due to pipe, storage tanks, as well as casing and cement failures. Draft SREIR at 4.9-105. This analysis is essential since oil wastewater injection has increased significantly, and is projected to increase over the duration of this Ordinance. Draft SREIR at 4.9-97, 104.

C. The Draft SREIR Is Inconsistent with the Kern County General Plan and Thus Violates the Planning and Zoning Law.

California's Planning and Zoning Law says that county and city zoning ordinances "shall be consistent with" applicable general plans.¹¹⁰ An ordinance is consistent with a general plan "only if" the land uses it authorizes "are compatible with the objectives, policies, general land uses, and programs specified in the plan."¹¹¹

The Ordinance appears inconsistent with some provisions of the Kern County General Plan (the "Kern Plan"). For example, the Kern Plan requires the County to "[e]nsure that adequate supplies of quality (appropriate for intended use) water are available to residential, industrial, and agricultural users"¹¹²; to "[r]eview development proposals to ensure adequate water is available to accommodate projected growth"¹¹³; and to verify "sources of water other than local groundwater," such as "recycled stormwater or wastewater," before approving new "high-consumptive uses."¹¹⁴

The Draft SREIR does not ensure that adequate supplies of water would be available for residential, industrial, and agricultural users, or for projected growth. Its water supply analysis for the Ordinance, which looks at cumulative demands and compares them to supply projections, concludes that under multiple climate scenarios "oil and gas M&I water use would compete with other M&I demands for supplies that are not expected to be readily available in the Project Area." Draft SREIR at p. 4.17-73.

The Draft SREIR also contradicts the Kern Plan by approving a new "high-consumptive use" without verifying the County can support it with sources other than local groundwater (such as "recycled ... wastewater"). The Kern Plan lists golf courses as a sample "high-consumptive use," and an average golf course in the Southwest United States uses about 4 AFY of water.¹¹⁵ Given the Ordinance projects to increase oil and gas use of M&I water by about 2,300 AFY—enough for thousands of households—it is a "high-consumptive use." Draft SREIR at 4.17-72. The Draft SREIR makes no effort to suggest that the Ordinance can be supported without relying on local groundwater. Draft SREIR at 6-3 ("[T]he Project's potential to substantially decrease

¹¹⁰ Gov't Code § 65860(a).

¹¹¹ *Ibid.*

¹¹² *Id.* at p. 19.

¹¹³ *Ibid.*

¹¹⁴ Kern County General Plan, Chapter 1, Land Use, Open Space, and Conservation Element, at p. 69 (Sept. 22, 2009).

¹¹⁵ Golf Course Superintendents Association of America, Golf Course Environmental Profile, Volume II, at p. 8 (2009), <https://www.gcsaa.org/uploadedfiles/Environment/Environmental-Profile/Water/Golf-Course-Environmental-Profile--Water-Use-and-Conservation-Report.pdf>.

groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of a groundwater basin will be significant and unavoidable.”).

VIII. The Draft SREIR’s Alternatives Analysis Impermissibly Rejects Feasible Alternatives.

The alternatives analysis is critical to the integrity of an EIR.¹¹⁶ An EIR must “ensure that all reasonable alternatives to proposed projects are thoroughly assessed by the responsible official.”¹¹⁷

The County must identify and “consider a reasonable range of potentially feasible alternatives that will foster informed decisionmaking and public participation.”¹¹⁸ This reasonable range must include alternatives that “feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.”¹¹⁹ Furthermore, “an agency may not approve a proposed project if feasible alternatives exist that would substantially lessen its significant environmental effects.”¹²⁰ An agency’s finding that an alternative is infeasible “must be supported by substantial evidence in the record.”¹²¹

The CEQA Guidelines state:

An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain *most* of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.¹²²

Thus, that an alternative may be inconsistent with some project objectives may not justify eliminating it from review.¹²³ The Guidelines also provide that:

Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project,

¹¹⁶ *In re Bay-Delta Programmatic Env'tl. Impact Report Coordinated Proceedings*, 43 Cal. 4th 1143, 1162 (2008) (“The EIR is the heart of CEQA, and the mitigation and alternatives discussion forms the core of the EIR.”).

¹¹⁷ *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus*, 27 Cal. App. 4th 713, 735 (1994); see also Pub. Resources Code, § 21002.1(a).

¹¹⁸ CEQA Guidelines, § 15126.6(a).

¹¹⁹ *Id.*

¹²⁰ *Save Panoche Valley v. San Benito Cnty.*, 217 Cal. App. 4th 503, 521 (2013) (citations omitted); see also Pub. Resources Code, § 21081 (a); CEQA Guidelines, § 15091 (a)(3).

¹²¹ *Id.*; Pub. Resources Code, §§ 21081.5, 21081(a)(3).

¹²² 14 Cal. Code Regs § 15126.6(a) (emphasis added).

¹²³ See *id.* § 15126.6(c), (f).

even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.¹²⁴

Given that the alternatives analysis is central to an EIR, the County cannot merely go through the motions of analyzing and summarily dismissing alternatives.

In the Draft SREIR, the County purported to evaluate six alternatives, including a no project alternative. Draft SREIR at 6-20-6-37. The County's evaluation of these alternatives was deeply flawed. Furthermore, because the Draft SREIR's discussion of alternatives is based on improper project purposes, among other reasons, the County impermissibly failed to analyze several additional alternatives.

A. The Draft SREIR Unlawfully Refused to Analyze a 2,500-Foot Setback Alternative.

The County's consideration of a 2,500-foot setback—as part of the “Fewer Wells Within the Project Footprint Alternative with a 2,500-foot Setback” alternative (SREIR 6.6.5) was wholly inadequate. The health studies on which the County relied in 2015 were demonstrably insufficient to assess the need for setbacks numerous reasons, including the major gaps pointed out by Commenters' experts. Now, even more problematically, the County's analysis in the cursory page and a half devoted to this topic in the SREIR fails to even reference the veritable avalanche of studies published in the intervening five years—almost all of which identify health risk associations with proximity to drilling operations, at distances far greater than the minimal setbacks in the Ordinance. The court's decision made clear that the SREIR was required to incorporate new information that has become available since the 2015 analysis, but this has not been done in the County's hasty reissuance of the draft.

Moreover, the County grounded its rejection of a 2,500-foot setback in cursory references to takings concerns that are wholly irrational as presented. While takings can be a consideration with respect to any land use ordinance, the County's analysis fails at the most basic level to rationally articulate how those concerns may apply here, and if they do, what measures could be taken to minimize or eliminate them. Where most every other major oil producing state, and numerous California municipalities, have oil and gas setbacks laws on their books—and, indeed, the Ordinance includes a setback as well—the County has presented nothing to show why a more robust setback would trigger takings issues that the other setbacks do not.

The County also irrationally conflated the 2,500-foot setback with the largely unrelated concept of a cap on the number of wells. Conflation with the permitting cap undercut the consideration of setbacks, and needlessly muddled the takings analysis.

Underscoring the lack of care in of its treatment of the setbacks issue, the County's analysis of the alternative mangles and misquotes its own objective as being “to create a locate [sic] permit for oil and gas activities so that County development standards and protective mitigation measures can be implemented . . .,” asserting that the setbacks alternative would be inconsistent with it. SREIR at 6-14. In fact, the referenced objective is to “to create a local permit

¹²⁴ *Id.* § 15126(b).

for oil and gas activities so that County development standards and protective mitigation measures for the purpose of reducing or eliminating potential significant adverse environmental impacts, to the extent feasible, of future oil and gas activities, thereby, ensuring that current County ordinances implement the Board of Supervisor's policies to protect the health, safety, and general welfare of communities, residents, and visitors." SREIR at 3-83. The County fails to explain, because it cannot, why a protective setback buffer would not be fully consistent with the actual stated objective of developing an ordinance geared toward "reducing or eliminating potential significant adverse environmental impacts," and "protect[ing] the health, safety, and general welfare of communities, residents, and visitors."

0009-60
Cont'd

The County also asserts, without further explanation, that the setback alternative would be inconsistent with the County's objective of containing "new development within an areas [sic] large enough to meet generous projections of foreseeable need but in locations that will not impair the economic strength derived from residential developments...or diminish the other amenities that exist in Kern County." SREIR 6-14. In fact, for the reasons explained below, a setback that protects "residential developments" and other Kern County amenities by putting distance between them and the drilling activity that threatens them is the only approach that is consistent with this objective.

0009-61

1. *The County Failed to Consider the Relevant Science in Rejecting the Setback Alternative.*

0009-62

The SREIR contains essentially no analysis of the health justification for setback buffers, falling back entirely on its 2015 health studies and stating only, "The [2015] studies show that a setback of 210 feet is sufficient in conjunction with the mitigation measures to reduce the impacts." SREIR at 6-14. Given that health impacts are the entire basis for establishing a setback, this reductive single sentence is wholly inadequate. It fails to consider the health justification for a 2,500-foot setback, despite explicitly acknowledging awareness of the comments submitted to CalGEM defining that justification in detail ("The 2,500-foot setback is a request that has been submitted to the County and CalGEM in public forums by a variety of advocates." *Id.*) A set of the referenced CalGEM comments defining the science behind the 2,500-foot setback recommendation (CalGEM Comments) is attached to these comments, portions of which are quoted and summarized in the discussion below.

i. *The Setback Alternative Analysis Failed to Address Flaws in the 2015 Health Studies.*

0009-63

The court held that the five business days the County previously provided for public comment on the cumulative health risk assessment, on which the County now bases its rejection of the 2,500-foot setback alternative, was inadequate.¹²⁵ Nonetheless, as also noted by the court, counsel to KG Farms was able to submit within that time a critique of the significant shortcomings in the study's analysis by their consultant Phyllis Fox on November 6, 2015 (Fox Report).

¹²⁵ *King & Gardiner Farms, LLC v. County of Kern*, Super. Ct. Nos. BCV-15-101666, BCV-15-101679 (Feb. 25, 2020), slip op. at 131-32.

The County fails to address or reference any of the flaws in the study identified in the Fox Report, most of which go to the heart of the County's rationale for not requiring a setback larger than 210 feet. Specifically, the Fox Report pointed out, *inter alia*, that the County had failed to acknowledge and address existing field studies showing risk associated with proximity to drilling operations, irrationally based its setbacks on cancer risk alone, and failed to accurately assess levels of HAP emissions.

Moreover, as discussed in the next subsection, multiple scientific analyses conducted since 2015 have confirmed and reinforced the flaws in the County's health analysis identified in the Fox Report—including and especially its failure to acknowledge field studies of risk at all. As discussed in Subsection B, since 2015 more than two dozen field studies concerning risks of proximity have been published, beyond the handful of earlier studies referenced in the Fox report. Two of these studies—Tran et al. (2020)¹²⁶ and Gonzalez et al. (2020)¹²⁷—were based in whole or part on Kern County data.¹²⁸

It bears note that numerous other analyses make clear that the many field studies from outside of California are also highly informative of the risks posed by California oil and gas development—including the risks posed by conventional drilling—and hence should have been considered in the County's health studies. Shonkoff and Hill (2019) addressed this issue in their literature review issued last year, stating that many studies from other states are “relevant to the California context,” explaining that many of the studies from outside of California “are relevant . . . given similar petroleum geology (e.g., migrated oil), technological approach to oil and gas production (e.g., enhanced oil recovery and other types of hydrocarbon production of migrated oil accumulations), density of oil and gas development, regulatory requirements (e.g., methane and non-methane volatile organic compound emission control rules), and maturity of oil and gas fields (e.g., presence of gas-gathering infrastructure and pipeline networks for water and hydrocarbon conveyance to reduce the need for trucking).”¹²⁹ This, and other similar analyses

¹²⁶ Tran, K.V., Casey, J.A., Cushing, L.J., Morello-Frosch, R. (2020). Residential Proximity to Oil and Gas Development and Birth Outcomes in California: A Retrospective Cohort Study of 2006–2015 Births. *Environmental Health Perspectives*, 128(6). <https://doi.org/10.1289/EHP5842>.

¹²⁷ Gonzalez, D.J.X., Sherris, A.R., Yang, W., Stevenson, D.K., Padula, A.M., Baiocchi, M., Burkee, M., Cullen, M.R., Shaw, G.M. (2020). Oil and gas production and spontaneous preterm birth in the San Joaquin Valley, CA. *Environmental Epidemiology*, 4(4). https://journals.lww.com/environepidem/Fulltext/2020/08000/Oil_and_gas_production_and_spontaneous_preterm.1.aspx?context=LatestArticles.

¹²⁸ Additionally, Shamasunder (2018) analyzed two oil drilling sites in the City of Los Angeles and found that physician-diagnosed asthma rates were elevated in close proximity to drilling as compared to state-level and county-level surveys. Shamasunder, B., Collier-Oxandale, A., Blickley, J., Sadd, J., Chan, M., Navarro, S., Hannigan, M., Wong, N.J. (2018). Community-Based Health and Exposure Study around Urban Oil Developments in South Los Angeles. *International Journal of Environmental Research and Public Health*, 15(1), 138. <https://doi.org/10.3390/ijerph15010138>.

¹²⁹ Shonkoff, S.B.C., Domen, J.K., Hill, L.A.L. (2019). *Human health and oil and gas development: An assessment of chemical usage in oil and gas activities in the Los Angeles Basin and the City of Los Angeles* at 6, 39-40. <https://www.psehealthyenergy.org/wp-content/uploads/2019/08/Chemical-Assessment.pdf>.

described in the CalGEM Comments,¹³⁰ reject the implicit premise of the health studies, which is that only local data is relevant to determining setback distances, such that the vast body of scientific literature pointing to the inadequacy of the County's 210-foot setback can be safely ignored. While modeling of local emissions is a useful data point, it is not conclusive of risk, and not the only data point that should be brought to bear on this critical public health question.

Of particular note, given the focus of the County's health analysis, are field studies concerning the association between oil and gas operations and measured air pollution. These studies of real-world emissions transport should have been considered alongside the modeled HAP data transport data in the County's health studies. The Fox report cited several such studies; and the following post-2015 studies should have been considered in revised health analysis:

- Garcia-Gonzales et al. (2019) conducted a systematic review of peer-reviewed literature on hazardous air pollutants actually observed in emissions from, and in the air near, oil and gas development operations in the United States.¹³¹ Their review identified a set of hazardous air pollutant compounds were collected through primary measurements, and associated them with various categories of oil production activity.
- Lim and John (2020) determined through monitoring analysis that mean total non-methane organic carbon concentrations mirrored the energy production volume changes from natural gas wells and liquid condensate facilities within 2 kilometers from the ambient air quality monitoring station.¹³²
- McKenzie et al. (2018a) used in-situ emissions monitoring to estimate pollution exposure and calculate risk across an array of distances plausible for residential proximity. Monitoring the concentration of benzene and other pollutants at various distances from active oil and gas development operations, the authors found compelling evidence that both cancer and non-cancer risks and impacts increase as distance between oil and gas development and residential proximity decreases.¹³³

¹³⁰ See CalGEM Comments at 8-10

¹³¹ Garcia-Gonzales, D., Shonkoff, S., Hays, J., Jerrett, M. (2019). Hazardous air pollutants associated with upstream oil and natural gas development: an examination of the current peer-reviewed literature. *Annual Review of Public Health*, 40:283-304.

¹³² Lim, G.Q. & John, K. (2020). Impact of energy production in the Barnett Shale gas region on the measured ambient hydrocarbon concentrations in Denton, Texas. *Atmospheric Pollution Research*, 11:409–418. <https://doi.org/10.1016/j.apr.2019.11.013>.

¹³³ McKenzie, L.M., Blair, B.D., Hughes, J., Allshouse, W.B., Blake, N., Helmig, D., Milmoie, P., Halliday, H., Blake, D.R., Adgate, J.L. (2018a). Ambient Non-Methane Hydrocarbon Levels Along Colorado's Northern Front Range: Acute and Chronic Health Risks. *Environmental Science & Technology*. https://mediaassets.thedenverchannel.com/document/2018/04/09/acs.est.7b05983_83327309_ver1.0.pdf.

- DiGiulio and Jackson (2016) that found very high concentrations of benzene in raw natural and associated gas—with concentrations as high as 330 parts per million (ppm) and a median concentration of 88.5 ppm.¹³⁴
- Haley et al. (2016) concluded that existing setback distances in various jurisdictions from 150 to 1,500 feet do not appear sufficient to protect public health and safety from explosions, radiant heat, or air pollution from oil and gas development activities.).¹³⁵

Regarding the County health studies' exclusive focus on cancer risk, numerous field studies—including the slew of more recent studies discussed in subsection B.—address risks of, *inter alia*, poor pregnancy outcomes (birth defects, preterm birth, and fetal death), respiratory and cardiovascular problems, asthma exacerbation, and health problems associated with constant loud noise—almost all at distances far exceeding 210 feet. Additionally, analysis by the South Coast Air Quality Management District (SCAQMD) determined that oil and gas wells contribute a far higher percentage to total HAPS than that determined by the County's risk assessment. For instance, while the cumulative risk assessment states that “approximately 84 percent of the benzene emitted in California comes from motor vehicles,” the SCAQMD analysis (as cited in a study by the Los Angeles Department of Public Works) found that in a more localized area, oil and gas wells were overwhelmingly the largest contributor to such emissions.¹³⁶

ii. *Significant New Information Since 2015 Supports the Need for a 2,500-Foot Setback.*

The court's decision made clear that the “normal choice” of EIR baseline conditions—those extant at the time the notice of preparation is published—do not apply to the EIR's revised analysis “because significant new information has become available on each subject” concerning which the County is charged with providing revised analysis—including the subject of air quality, which underpins any analysis of setbacks.¹³⁷ In any event, evaluating the newly-proposed 2,500-foot setback alternative without reference to a sea change in the amount of available relevant data in the last five years is fundamentally irrational.

In the past five years, a vast number of new peer reviewed studies have demonstrated risks of potentially severe health consequences from living in proximity to production operations—including, as discussed below, three conducted in California. In 2015, the California Council on Science & Technology (CCST) presented a health risk analysis in Chapter 6 of its SB

¹³⁴ DiGiulio, D.C., & Jackson, R.B. (2016). Impact to Underground Sources of Drinking Water and Domestic Wells from Production Well Stimulation and Completion Practices in the Pavillion, Wyoming, Field. *Environmental Science & Technology*. <https://doi.org/10.1021/acs.est.5b04970>.

¹³⁵ Haley, M., McCawley, M., Epstein, A.C., Arrington, B., Bjerke, E.F. (2016). Adequacy of Current State Setbacks for Directional High-Volume Hydraulic Fracturing in the Marcellus, Barnett, and Niobrara Shale Plays. *Environmental Health Perspectives*, 124(9). <https://doi.org/10.1289/ehp.1510547>.

¹³⁶ City of Los Angeles Department of Public Works, Office of Petroleum and Natural Gas Administration and Safety, *Oil and Gas Health Report*, July 25, 2019 (OPNGAS Report), p. 56, available at http://clkrep.lacity.org/online/docs/2017/17-0447_rpt_BPW_07-29-2019.pdf.

¹³⁷ *King & Gardiner Farms, LLC v. County of Kern*, 45 Cal.App.5th 814, 889 (2020).

4-mandated analysis of fracking impacts, and identified four peer-reviewed studies regarding air pollution and health outcomes associated with oil and gas activities.¹³⁸ Last year, the lead author of Chapter 6, Dr. Seth Shonkoff, was again lead author of a human health study commissioned by the Office of Petroleum and Natural Gas Administration and Safety in the City of Los Angeles (Shonkoff and Hill 2019). Shonkoff 2019 identified an additional 24 peer-reviewed studies concerning oil and gas proximity health risk performed during the period 2015-2018—and numerous others have come down since that time, including the California studies.

These newer studies, like the studies available in 2015, in almost all cases concern setback distances far greater than the County's 210-foot setback, and in many cases significantly greater than 2,500 feet—making that number a minimum that the County should have considered to protect public health. The CCST report concluded that the reviewed studies “indicate that community public health risks of exposures to toxic air contaminants, such as benzene and aliphatic hydrocarbons, are most significant within 800 meters (½ mile) from active oil and gas development.” The studies discussed below found health risk associations even for people living a mile or more away from drilling operations, and even more frequently within a half mile.

These studies provide overwhelming evidence of significant health risk associations that would support a 2,500-foot setback from oil and gas production operations. At the very least, the County was required to consider them carefully, rather than merely re-affirming in a cursory sentence its previous conclusion that a 210-foot setback is adequate, without so much as reference to the new data.

Subsection 1 below summarizes newer literature reviews and meta-analyses concerning health risk associations with proximity to oil and gas operations, and subsection 2 describes specific health risks that have been studied in California and elsewhere. These sections summarize analysis contained in the CalGEM comments, but neither these Comments nor the CalGEM Comments are intended to provide a complete compendium of all relevant studies. It was the County's job to identify such studies, rather than merely noting as it did that the letters and postcards it received from the public had not done so.

a. Literature Reviews Supporting a 2,500-Foot Setback

The 2015 CCST report looked at four peer-reviewed field studies and found that “[t]he drilling, completion, and production phases common to all oil and gas production incur significant risk of exposure to many toxic substances and accidents.”¹³⁹ Consequently, the report authors recommended development of “science-based surface setbacks, to limit exposures.”¹⁴⁰

At least four literature reviews and meta-analyses conducted since that time, described below, support the CCST report's conclusion.

¹³⁸ Well Stimulation in California (SB4) 2015, Chapter 6, “Potential Impacts of Well Stimulation on Human Health in California,” available at <https://ccst.us/wp-content/uploads/160708-sb4-vol-II-6-1.pdf>.

¹³⁹ CCST (2015), Summary Report at 30.

¹⁴⁰ CCST (2015), Summary Report at 64.

○ *Wong (2017)*

In November 2017, two years after the CCST issued its report, Nicole J. Wong issued an updated analysis entitled “Existing scientific literature on setback distances from oil and gas development sites.”¹⁴¹ Wong (2017) noted the “growing set of studies” investigating the connection between proximity of modern oil and gas extraction to nearby communities and health impacts, and included in her analysis nine studies and reports that were issued after the 2015 CCST Report. According to Wong (2017), “most” of the study distances finding higher risk “are measured at a half-mile to a mile.”¹⁴² Wong (2017) concluded that: “[b]ased on the current available research, a 2,500-foot setback recommendation is on the lower end of the range of distances where research has determined harmful health and quality of life impacts of toxic emissions and exposures.”¹⁴³

Wong (2017) additionally detailed the outcome of a Delphi-method study that was undertaken to assess whether an expert consensus exists regarding an appropriate setback distance for unconventional oil and gas development from human activity. According to Wong (2017), “The process resulted in an 89% participant agreement that 1 to 1.25-mile distance (6,600 feet) from unconventional oil and gas development is an acceptable minimum to protect human health. Additionally, the study recommends greater setback distances for settings where vulnerable subpopulations might gather, such as schools, day care centers, and hospitals.”¹⁴⁴ Since Wong (2017) was issued, the Delphi-method study discussed therein has been peer-reviewed and published as Lewis et al. (2018).¹⁴⁵

○ *Webb et al. (2017)*

Webb et al. (2017) conducted a literature review focused on the potential neurodevelopmental health effects on children and newborns of chemicals used in unconventional oil and gas operations. The analysis concluded “that at a minimum, 1.6 km [5,249 feet] setbacks, preferably greater, should be established between drilling facility lines and the property line of occupied dwellings such as schools, hospitals and other spaces where infants and children might spend a substantial amount of time.”¹⁴⁶

¹⁴¹ Nicole J. Wong. (2017). *Existing scientific literature on setback distances from oil and gas development sites*. stand.la/uploads/5/3/9/0/53904099/2500_literature_review_report-v2-share.pdf.

¹⁴² *Ibid.*

¹⁴³ *Ibid.*

¹⁴⁴ *Id.* at 4, citing Health and Unconventional Oil & Gas Development: Delphi Study Results. *South West Pennsylvania Environmental Health Project Technical Reports*, Issue 4.

http://www.marsparentgroup.com/uploads/3/0/3/4/30347031/issue_4_-_health_and_unconventional_oil_gas_development-delphi_study_results.pdf.

¹⁴⁵ Lewis, C., Greiner, L.H., Brown, D.R. (2018). Setback distances for unconventional oil and gas development: Delphi study results. *PLoS ONE*, 13(8). <https://doi.org/10.1371/journal.pone.0202462>.

¹⁴⁶ Webb, E., Moon, J., Dyrzka, L., Rodriguez, B., Cox, C., Patisaul, H., Bushkin, S., London, E. (2017). Neurodevelopmental and neurological effects of chemicals associated with unconventional oil and natural gas operations and their potential effects on infants and children. *Reviews on Environmental Health*, 33(1). <https://doi.org/10.1515/reveh-2017-0008>.

○ *Shonkoff and Hill (2019)*

In May 2019, Seth B. C. Shonkoff and Lee Ann L. Hill produced an updated review of literature on human health and oil and gas development—addressing both the findings of the 2015 CCST Report as well as an additional twenty-four peer-reviewed studies published after that report and prior to the end of 2018.¹⁴⁷ Echoing both the 2015 CCST Report and Wong (2017), Shonkoff and Hill (2019) likewise found that “[t]he majority of peer-reviewed studies that assess human health in the context of oil and gas development as a function of distance and density have noted increased hazards, risks and health impacts as distance decreases and density increases.”¹⁴⁸ The authors observed that “[h]azards, risks, and impacts attributable to oil and gas development are . . . observed in the peer-reviewed literature at 2,500 ft and beyond.”¹⁴⁹ They further noted that studies “have found associations with increased health risks associated with oil and gas development ranging” as far as “one mile (5,290 feet),” and consequently concluded setbacks “up to 5,290 feet should be considered.”¹⁵⁰

○ *Deziel et al. (2020)*

Deziel et al. (2020) undertook a scoping review to assess what is known about the human health outcomes associated with exposure to unconventional oil and gas development. The authors found that 25 of the 29 studies reported at least one statistically significant association between the oil and gas exposure metric and higher risk of an adverse health outcome. The authors found that the most commonly studied endpoint was adverse birth outcomes, particularly preterm deliveries and low birth weight.

They concluded that “current research points to a growing body of evidence of health problems in communities living near [unconventional oil and gas] sites.” The authors noted that “the epidemiological evidence gathered thus far shows detectable health effects in distances of up to 10 miles away” and observed that setbacks have been adopted in several jurisdiction to mitigate risks.¹⁵¹

○ *Additional Scientific Compilations*

Additional recent literature compilations further establish the hazards posed by upstream oil and gas development and underscore the necessity of setbacks. In 2019, the Los Angeles Department of Public Works, Office of Petroleum and Natural Gas Administration and Safety, published a report addressing, *inter alia*, the scientific basis for setbacks, based on which it instructed the City Planning Department to determine the feasibility of amending the zoning

¹⁴⁷ Shonkoff and Hill (2019) at 5.

¹⁴⁸ *Id.* at 2, 16.

¹⁴⁹ *Id.* at 28-29.

¹⁵⁰ *Id.* at 2.

¹⁵¹ Deziel, N.C., Brokovich, E., Grotto, I., Clark, C.J., Barnett-Itzhaki, Z., Broday, D., Agay-Shay, K. (2020). Unconventional oil and gas development and health outcomes: A scoping review of the epidemiological research. *Environmental Research*, 182:109124. <https://doi.org/10.1016/j.envres.2020.109124>.

code to establish a setback.¹⁵² In 2018, based on its own literature review, the Los Angeles County Department of Public Health concluded that a setback of 1,500 feet was justified to address harmful air quality, noise, and odor impacts from drilling.¹⁵³

Additionally, although not specifically focused on setbacks, three additional literature reviews support the conclusion of other literature reviews of significant health risk associations with proximity to drilling:

- Gorski and Schwartz (2019) concluded that activity metrics for unconventional natural gas drilling “have been found to be associated with preterm birth, high-risk pregnancy, and possibly low birth weight; three types of asthma exacerbations; and nasal and sinus, migraine headache, fatigue, dermatologic, and other symptoms”; and that the “associations were robust.”¹⁵⁴
- In 2019, Concerned Health Professionals of New York and Physicians for Social Responsibility issued the sixth edition of their *Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking*. The compendium is a fully referenced compilation of evidence outlining the risks and harms of unconventional oil and gas extraction.¹⁵⁵
- In 2016, researchers with Physicians, Scientists, and Engineers for Healthy Energy (PSEHE) conducted a literature review of 685 peer-reviewed papers on the impacts of unconventional oil and gas development published between 2009 and 2015.¹⁵⁶ PSEHE calculated that: 84 percent of the health studies it reviewed found public health hazards, elevated risks, or adverse health outcomes; 87 percent of air quality studies found

¹⁵² OPNGAS Report at 2.

¹⁵³ Los Angeles County Department of Public Health. (2018). *Public Health and Safety Risks of Oil and Gas Facilities in Los Angeles County*. http://publichealth.lacounty.gov/eh/docs/PH_OilGasFacilitiesPHSafetyRisks.pdf. Shonkoff and Hill (2019) reflected a degree of skepticism regarding the sufficiency of a 1,500’ setback, stating that the findings of LACDPH 2018 are consistent “to a large degree” with Shonkoff and Hill 2019 but qualifying it in this way: “However, as noted earlier, most of the studies that assess health risks and impacts as a function of distance in the peer reviewed literature do not consider distances less than 2,500 ft due to the need for population sample sizes large enough to power their study and the majority—but not all—of these studies have found evidence of health impacts associated with oil and gas development at this distance. Shonkoff and Hill (2019) at 52.

¹⁵⁴ Gorski, I., & Schwartz, B.S. (May 20, 2020). Environmental Health Concerns From Unconventional Natural Gas Development. *Oxford Research Encyclopedia, Global Public Health*. DOI: 10.1093/acrefore/9780190632366.013.44.

¹⁵⁵ Concerned Health Professionals of New York, & Physicians for Social Responsibility. (2019). *Compendium of scientific, medical, and media findings demonstrating risks and harms of fracking (unconventional gas and oil extraction)* (6th ed.). <http://concernedhealthny.org/compendium/>.

¹⁵⁶ Hays, J. & Shonkoff, S.B.C. (2016). Toward an Understanding of the Environmental and Public Health Impacts of Unconventional Natural Gas Development: A Categorical Assessment of the Peer-Reviewed Scientific Literature, 2009-2015. *PLoS ONE*, 1(4): e0154164. <https://doi.org/10.1371/journal.pone.0154164>.

elevated air pollutant emissions or concentrations; and 69 percent of water quality studies found potential, positive association, or actual incidence of water contamination.¹⁵⁷

b. Numerous Recent Individual Studies Identify Specific Risk Associations to Oil and Gas Operations.

The numerous risk studies conducted in recent years address a host of specific risks associated with oil and gas operations. The County failed to consider these specific risk types at all, relying solely on its flawed analysis to eliminate all non-cancer risks as insignificant.

Below is a brief summary of the relevant categories of risk that recent studies have analyzed.

○ *Adverse birth outcome studies*

- Gonzalez et al. (2020) (the only post-2015 birth outcome study referenced at all in the SREIR) assessed the association between exposure to oil and gas wells and risk of spontaneous preterm birth among women living in the San Joaquin Valley, and found that women with the highest exposure to wells had an 8 to 14 percent increased risk of preterm birth at 20-31 weeks, compared to women who didn't have any exposure.
- Tran et al. (2020) studied women in California living within 10 kilometers (6.2 miles) of at least one production well, and found that infants born to women in rural communities with the highest exposure to oil and gas production were at 40 percent higher risk of being born low birthweight, had lower term birthweight, and 22 percent higher risk of being small for their gestational age.
- Hill (2018) determined that commencement of drilling activity in Pennsylvania was associated with increased low birth weight and decreased term birth weight among babies born to mothers living within 2.5 kilometers (8,202 feet) of an active well, as compared to mothers living within 2.5 kilometers of a permitted, but not yet drilled, well.¹⁵⁸
- McKenzie et al. (2019) evaluated the relationship between maternal proximity to oil and gas well site activities and births with congenital heart defects, and found that the odds of a birth with heart defects (aortic artery and valve defect, conotruncal defect, or tricuspid valve defect) were 2.6 to 4.6 times more likely than controls in the group with high exposure to wells compared to the low exposure group.¹⁵⁹

¹⁵⁷ *Id.*

¹⁵⁸ Hill, E. L. (2018). Shale gas development and infant health: Evidence from Pennsylvania. *Journal of Health Economics*, 61, 134-150. <https://doi.org/10.1016/j.jhealeco.2018.07.004>.

¹⁵⁸ McKenzie, L.M., Allshouse, W., Daniels, S. (2019).

¹⁵⁹ McKenzie, L.M., Allshouse, W., Daniels, S. (2019). Congenital heart defects and intensity of oil and gas well site activities in early pregnancy. *Environment International*, 132: 104949. <https://doi.org/10.1016/j.envint.2019.104949>.

- Apergis et al. (2019) examined the impact of shale gas and oil fracking wells on infants' health at birth in Oklahoma, and found "a unidirectional relationship between fracking activities and three alternative indexes of infants' health at birth, as well as a significant impact of fracking on infants' health indicators."¹⁶⁰
- Caron-Beaudoin et al. (2018) detected developmental toxicants associated with oil and gas in a study of 29 pregnant women residing in gas-producing areas of northeastern British Columbia, Canada.¹⁶¹
- Currie et al. (2017) analyzed Pennsylvania birth records in proximity to active well sites, and found evidence for negative health effects of in utero exposure to hydraulic fracturing sites within three kilometers (9,842 feet) of a mother's residence, with the largest health impacts seen for in utero exposure within one kilometer (3,281 feet) of unconventional oil and gas wells.¹⁶²
- Whitworth et al. (2017) found a significant association between distance/density and preterm birth across all three distances studied within 10 miles, and for fetal death at two and ten miles.¹⁶³
- Whitworth et al. (2018), using the same dataset as Whitworth (2017) used the same birth dataset as Whitworth et al. (2017) using more nuanced exposure metrics, and still found that preterm birth was associated with unconventional natural gas development; and also found that associations are strongest when exposures occur in early pregnancy.¹⁶⁴
- Casey et al. (2016) found that unconventional natural gas development activity was associated with 40 percent increased odds of a neonate being born preterm, as well as 30 percent increase in odds of high-risk pregnancies among the mothers.¹⁶⁵

¹⁶⁰ Apergis, N., Hayat, T. Saeed, T. (2019). Fracking and infant mortality: fresh evidence from Oklahoma. *Environmental Science and Pollution Research*, 26:32360–32367. <https://doi.org/10.1007/s11356-019-06478-z>.

¹⁶¹ Caron-Beaudoin, E., Valter, N., Chevrier, J., Ayotte, P., Frohlich, K., Verner, M.-A. (2018). Gestational exposure to volatile organic compounds (VOCs) in Northeastern British Columbia, Canada: A pilot study. *Environment International*, 110: 131-138. <https://doi.org/10.1016/j.envint.2017.10.022>.

¹⁶² Currie, J., Greenstone, M., Meckel, K. (2017). Hydraulic fracturing and infant health: New evidence from Pennsylvania. *Science Advances*, 3(12), e1603021. <https://doi.org/10.1126/sciadv.1603021>.

¹⁶³ Whitworth, K.W., Marshall, A.K., Symanski, E. (2017). Maternal residential proximity to unconventional gas development and perinatal outcomes among a diverse urban population in Texas. *PLoS One*, 12(7), e0180966. <http://dx.doi.org/10.1371/journal.pone.0180966>.

¹⁶⁴ Whitworth, K.W., Marshall, A.K., Symanski, E. (2018). Drilling and Production Activity Related to Unconventional Gas Development and Severity of Preterm Birth. *Environmental Health Perspectives*. <https://doi.org/10.1289/EHP2622>.

¹⁶⁵ Casey, J.A., Savitz, D.A., Rasmussen, S.G., Ogburn, E.L., Pollak, J., Mercer, D.G., Schwartz, B.S. (2016). Unconventional Natural Gas Development and Birth Outcomes in Pennsylvania, USA. *Epidemiology*, 27(2): 163–172. doi:10.1097/EDE.0000000000000387.

○ *Asthma and respiratory health studies*

- Shamasunder et al. (2018) conducted household health surveys using questions from a validated health questionnaire within two 1,500-foot buffer areas surrounding the Jefferson and AllenCo oil production sites in Los Angeles, and found that Physician-diagnosed asthma rates were elevated within both buffer zones compared to state-level and county-level surveys.¹⁶⁶
- Peng et al. (2018) found a significant association between gas development and hospitalizations for pneumonia among the elderly, which is consistent with higher levels of air pollution resulting from development.¹⁶⁷
- Willis et al. (2018) found that the odds of pediatric hospitalizations were consistently elevated in the highest exposure category compared to those unexposed, with a 25 percent increase in odds of pediatric hospitalization for asthma if a well was drilled within the same quarter.¹⁶⁸
- Rasmussen et al. (2016) investigated the association between unconventional natural gas development and asthma exacerbations in Pennsylvania, and observed associations between the highest quartile of activity metric for each phase compared with the lowest for nearly all exposure-outcome pairs.¹⁶⁹

○ *Cardiovascular disease studies*

- McKenzie et al. (2018b) observed an association between the intensity of oil and gas activities in northeastern Colorado and indications of cardiovascular disease, with the highest exposure group exhibited the strongest indicators of systemic inflammation.¹⁷⁰

McKenzie et al. (2018b) noted that their results were consistent with other studies showing that inhalation of hydrocarbons has been associated with increases in cardiovascular emergency visits and cardiovascular morbidity and mortality, including

¹⁶⁶ Shamasunder (2020).

¹⁶⁷ Peng, L., Meyerhoefer, C., Chou, S.Y. (2018). The health implications of unconventional natural gas development in Pennsylvania. *Health Economics*, 27(6): 956-983. <https://doi.org/10.1002/hec.3649>.

¹⁶⁸ Willis, M.D., Jusko, T.A., Halterman, J.S., Hill, E.L. (2018). Unconventional natural gas development and pediatric asthma hospitalizations in Pennsylvania. *Environmental Research*, 166: 402-408. <https://doi.org/10.1016/j.envres.2018.06.022>.

¹⁶⁹ Rasmussen S.G., Ogburn E.L., McCormack M, Casey J.A., Bandeen-Roche K., Mercer D.G., Schwartz B.S. (2016). Association between unconventional natural gas development in the marcellus shale and asthma exacerbations. *JAMA Internal Medicine*, 176(9): 1334-1343. <https://doi.org/10.1001/jamainternmed.2016.2436>.

¹⁷⁰ McKenzie, L.M., Crooks, J., Peel, J.L., Blair, B.D., Brindley, S., Allshouse, W.B., Malin, S., Adgate, J.L. (2018b). Relationships between Indicators of Cardiovascular Disease and Intensity of Oil and Natural Gas Activity in Northeastern Colorado. *Environmental Research*. <https://doi.org/10.1016/j.envres.2018.12.004>.

Ye et al. (2017),¹⁷¹ Bard et al. (2014),¹⁷² Harrison (2016),¹⁷³ Villeneuve et al. (2013),¹⁷⁴ and Xu et al. (2009).¹⁷⁵

○ *Endocrine disrupting chemical studies*

- Bolden et al. (2018) conducted a literature review to identify air pollutants associated with oil and gas development, and identified 106 airborne chemicals that were detected in two or more studies—including ethane, benzene, n-pentane, toluene, ethylbenzene, several polycyclic aromatic hydrocarbons, and mercury—at least 21 of which are known endocrine disruptors, and several others are identified in the literature as affecting reproduction, development, and neurophysiological function.¹⁷⁶
- Kassotis et al. (2014) measured the presence of known or suspected endocrine-disrupting chemicals used for hydraulic fracturing in surface and groundwater samples in a drilling-dense region of Colorado, and determined that the majority of water samples collected from sites in the heavily drilled area exhibited more endocrine-disrupting chemicals than reference sites with limited nearby drilling operations.¹⁷⁷

¹⁷¹ Ye, D., Klein, M., Chang, H.H., Sarnat, J.A., Mulholland, J.A., Edgerton, E.S., Winkquist, A., Tolbert, P.E., Sarnat, S.E. (2017). Estimating Acute Cardiorespiratory Effects of Ambient Volatile Organic Compounds. *Epidemiology*, 28(2): 197-206. <https://doi.org/10.1097/EDE.0000000000000607>.

¹⁷² Bard, D., Kihal, W., Schillinger, C., Fermanian, C., Segala, C., Glorion, S., Arveiler, D., Weber, C. (2014). Traffic-Related Air Pollution and the Onset of Myocardial Infarction: Disclosing Benzene as a Trigger? A Small-Area Case-Crossover Study. *PLoS ONE*, 9(6): e100307. <https://doi.org/10.1371/journal.pone.0100307>.

¹⁷³ Harrison, R.J. (2016). Sudden Deaths Among Oil and Gas Extraction Workers Resulting from Oxygen Deficiency and Inhalation of Hydrocarbon Gases and Vapors — United States, January 2010-March 2015. *MMWR. Morbidity and Mortality Weekly Report*, 65. <https://doi.org/10.15585/mmwr.mm6501a2>.

¹⁷⁴ Villeneuve, P.J., Jerrett, M., Su, J., Burnett, R.T., Chen, H., Brook, J., Wheeler, A.J., Cakmak, S., Goldberg, M. S. (2013). A cohort study of intra-urban variations in volatile organic compounds and mortality, Toronto, Canada. *Environmental Pollution*, 183: 30-39. <https://doi.org/10.1016/j.envpol.2012.12.022>.

¹⁷⁵ Xu, X., Freeman, N.C., Dailey, A.B., Ilacqua, V.A., Kearney, G.D., Talbott, E.O. (2009). Association between Exposure to Alkylbenzenes and Cardiovascular Disease among National Health and Nutrition Examination Survey (NHANES) Participants. *International Journal of Occupational and Environmental Health*, 15(4): 385-391. <https://doi.org/10.1179/oeh.2009.15A385>.

¹⁷⁶ Bolden, A.L., Schultz, K., Pelch, K.E., Kwiatkowski, C.F. (2018). Exploring the Endocrine Activity of Air Pollutants Associated with Unconventional Oil and Gas Extraction, *Environmental Health*, 17:26. <https://www.ncbi.nlm.nih.gov/pubmed/29558955>.

¹⁷⁷ Kassotis, C.D., D.E. Tillit, J.W. Davis, A.M. Hormann, Nagel, S.C. (2014), Estrogen and Androgen Receptor Activities of Hydraulic Fracturing Chemicals and Surface and Ground Water in a Drilling-Dense Region. *Endocrinology*, 155(3): 897-907. <https://doi.org/10.1210/en.2013-1697>.

○ *Noise level studies*

- Hays et al. (2017) determined that the scientific literature indicates that oil and gas activities produce noise at levels that may increase the risk of adverse health outcomes, including annoyance, sleep disturbance, and cardiovascular disease.¹⁷⁸
- Richburg and Slagley (2019) measured noise level in Southwestern Pennsylvania near non-traditional gas industry sites, and found levels exceeding US EPA guidelines.¹⁷⁹
- Boyle, et al. (2017) investigated the 24-hour noise levels of a compressor station relative to residential homes both indoors and outdoors, and determined that homes up to 600 meters away (about 1,968 feet) experienced outdoor noise levels exceeding US EPA's recommended limit to prevent activity interference and annoyance (and noted that a then-proposed setback distance of 300 meters (985 feet) for the State of Maryland "may not be sufficient to protect public health" from noise impacts).¹⁸⁰
- Radtke et al. (2017) monitored noise at 23 oil and gas sites in northern Colorado, and determined that "every drilling and hydraulic fracturing site with and without noise walls had average noise measurements at 350 feet (107 meters) that exceeded the current [Colorado] residential daytime and night time noise limits."¹⁸¹
- Blair et al. (2018) measured noise levels in Colorado and found that they levels known to cause health impacts over 40 percent of the time during the day and 23 percent of the time at night; and concluded that "homes in closer proximity to operations will likely experience noise exposure at levels of concern even with the implementation of sound mitigation best management practices."¹⁸²

¹⁷⁸ Hays, J., McCawley, M., Shonkoff, S. B. C. (2017). Public health implications of environmental noise associated with unconventional oil and gas development. *Science of The Total Environment*. <https://doi.org/10.1016/j.scitotenv.2016.11.118>.

¹⁷⁹ Richburg, C. M., & Slagley, J. (2019). Noise concerns of residents living in close proximity to hydraulic fracturing sites in Southwest Pennsylvania. *Public Health Nursing*, 36(1): 3-10. doi:10.1111/phn.12540.

¹⁸⁰ Boyle, M.D., Soneja, S., Quiros-Alcala, L., Dalemarre, L., Sapkota, A. R., Sangaramoorthy, T., Wilson, S., Milton, D., Sapkota, A. (2017). A pilot study to assess residential noise exposure near natural gas compressor stations. *PLoS ONE*, 12(4): e0174310. <https://doi.org/10.1371/journal.pone.0174310>.

¹⁸¹ Radtke, C., Autenrieth, D.A., Lipsey, T., Brazile, W.J. (2017). Noise characterization of oil and gas operations. *Journal of Occupational and Environmental Hygiene*, 14(8): 659-667. <https://doi.org/10.1080/15459624.2017.1316386>.

¹⁸² Blair, B.D., Brindley, S., Dinkeloo, E., McKenzie, L.M., Adgate, J.L. (2018). Residential noise from nearby oil and gas well construction and drilling. *Journal of Exposure Science & Environmental Epidemiology*, 1. <https://doi.org/10.1038/s41370-018-0039-8>.

○ *Mental health studies*

- Casey et al. (2019) conducted a retrospective cohort study of mothers without prevalent anxiety or depression at time of conception, and observed a relationship between unconventional natural gas development activity and increased antenatal anxiety and depression.
- Casey et al. (2018) evaluated the association between unconventional natural gas development in Pennsylvania and depression symptoms and disordered sleep diagnoses, and found that depressive symptoms were associated with increased well density and larger wells, at both high and low exposure levels.¹⁸³
- Sangaramoorthy et al. (2016) found that “fracking contributes to a disruption in residents’ sense of place and social identity, generating widespread social stress.”¹⁸⁴

○ *Other adverse health outcomes*

- Denham et al. (2019) examined the relationships between short-term and long-term exposures to unconventional natural gas development and county hospitalization rates for a variety of broad disease categories—based on county-level data for Pennsylvania from 2003 to 2014, and found a strong and positive association of cumulative well density (per square kilometer) with genitourinary and skin-related hospitalization rates.¹⁸⁵
- McKenzie et al. (2017) found that young individuals in Colorado (ages 5-24) with acute lymphocytic leukemia were over four times as likely to live in the highest well proximity and density category compared to those not diagnosed with acute lymphocytic leukemia; as well as a linear increase in risk of acute lymphocytic leukemia was observed with increasing proximity and density.¹⁸⁶
- Weinberger et al. (2017) reviewed structured health assessments conducted between February 2012 and October 2015 for 51 adults in Pennsylvania who lived within one kilometer (3,281 feet) of a well. After excluding pre-existing conditions, the most

¹⁸³ Casey, J. A., Wilcox, H. C., Hirsch, A. G., Pollak, J., Schwartz, B. S. (2018). Associations of unconventional natural gas development with depression symptoms and disordered sleep in Pennsylvania. *Scientific Reports*, 8(1): 11375. <https://doi.org/10.1038/s41598-018-29747-2>.

¹⁸⁴ Sangaramoorthy, T., Jamison, A.M., Boyle, M.D., Payne-Sturges, D.C., Sapkota, A., Milton, D.K., Wilson, S.M. (2016). Place-based perceptions of the impacts of fracking along the Marcellus Shale. *Social Science & Medicine*, 151:27-37. <https://doi.org/10.1016/j.socscimed.2016.01.002>.

¹⁸⁵ Denham, A., Willis, M., Zavez, A. Hill, E., Unconventional natural gas development and hospitalizations: evidence from Pennsylvania, United States, 2003-2014. *Public Health*, 168:17-25. <https://doi.org/10.1016/j.puhe.2018.11.020>.

¹⁸⁶ McKenzie, L.M., Allshouse, W.B., Byers, T.E., Bedrick, E.J., Serdar, B., Adgate, J.L. (2017). Childhood hematologic cancer and residential proximity to oil and gas development. *PLoS ONE*, 12(2): e0170423. <https://doi.org/10.1371/journal.pone.0170423>.

commonly reported symptoms were sleep disruption, headache, throat irritation, stress or anxiety, cough, shortness of breath, sinus problems, fatigue, nausea, and wheezing.¹⁸⁷

- Tustin et al. (2016) identified survey respondents with chronic rhinosinusitis, migraine headache, and fatigue symptoms, and determined that respondents reporting two or three of the health outcomes were significantly associated with the highest natural gas development activity category compared to lowest.¹⁸⁸
- Jemielita et al. (2015) found that cardiology inpatient prevalence rates were significantly positively associated with number of wells per zip code and wells per square kilometer (3,281 feet²), while neurology inpatient prevalence rates were significantly associated with well density; as well as evidence supporting an association between well density and inpatient prevalence rates for the medical categories of dermatology, oncology, and urology.¹⁸⁹
- Steinzor et al. (2013) found a statistically significant increase in reported health symptoms by residents who lived within 1,500 feet of a well compared to those who lived farther away, including headaches, nosebleeds, throat irritation, eye burning, shortness of breath, and skin rashes.¹⁹⁰
- Paulik (2018) People residing within 0.75 km (2,461 feet) of an active well measured elevated levels of exposure to polycyclic aromatic hydrocarbons (PAH).¹⁹¹

2. The County Failed to Consider Available Information Concerning the Disproportionate Impact of Drilling on the County's Most Vulnerable Residents.

The County should have considered, in evaluating the 2,500-foot setback, the vulnerability of the communities affected by proximity to drilling operations. Tens of thousands

¹⁸⁷ Weinberger, B., Denha, L.H., Walleigh, L., Brown, D. (2017). Health symptoms in residents living near shale gas activity: A retrospective record review from the Environmental Health Project. *Preventive Medicine Reports*. <https://doi.org/10.1016/j.pmedr.2017.09.002>.

¹⁸⁸ Tustin, A.W., Hirsch, A.G., Rasmussen, S.G., Casey, J.A., Bandeen-Roche, K., Schwartz, B.S. (2016). Associations between Unconventional Natural Gas Development and Nasal and Sinus, Migraine Headache, and Fatigue Symptoms in Pennsylvania. *Environmental Health Perspectives*. <https://doi.org/10.1289/EHP281>.

¹⁸⁹ Jemielita, T., Gerton, G. L., Neidell, M., Chillrud, S., Yan, B., Stute, M., Howarth, M., Saberi, P., Fausti, N., Penning, T.M., Roy, J., Probert, K.J., Panettieri, R. A., Jr. (2015). Unconventional Gas and Oil Drilling Is Associated with Increased Hospital Utilization Rates. *PLoS ONE*, 10(7). <https://doi.org/10.1371/journal.pone.0131093>.

¹⁹⁰ Steinzor, N., Subra, W., Sumi, L. (2013). Investigating links between shale gas development and health impacts through a community survey project in Pennsylvania. *New Solutions: A Journal of Environmental and Occupational Health Policy*: 23(1): 55-83. <https://doi.org/10.2190/NS.23.Le>.

¹⁹¹ Paulik, Blair L., Environmental and Individual PAH exposures near rural natural gas extraction, 241 *Environmental Pollution*, 397 (2018).

of County residents are forced to live dangerously close to oil and gas development; and those living closest to oil and gas operations are predominantly Spanish speaking and already living with a disproportionate pollution burden.

i. Drilling in the County Disproportionately Affects Low Income and Linguistically Isolated Hispanic Communities.

Slightly more than 290,000 Kern residents live within one mile of an oil or gas well,¹⁹² including more than 71,500 residents who live within 2,500 feet.¹⁹³ 646 operational wells are within 2,500 feet from a school. 35 schools in Kern County are within 2,500 feet from an operational oil and gas well.¹⁹⁴ Roughly 25 percent of Kern County wells are located in low income communities; and of those wells, a significantly higher percentage are located within 2,500 feet from sensitive receptors than is the case elsewhere in California.¹⁹⁵ And of those living within 2,500 feet in Kern County, 43 percent are Hispanic.¹⁹⁶

ii. Permitting Patterns in the County Add to Cumulative and Disproportionate Environmental Burdens on Communities Living Near Wells.

The case for a 2,500-foot setback is even stronger in light of the cumulative impacts faced by those communities who live nearest to oil and gas development in the County. Cumulative impacts heighten the adverse consequences of oil and gas development experienced by nearby residents.

As CalEPA explained in their 2017 CalEnviroScreen 3.0 report:

Many factors, often referred to as stressors, contribute to a community's pollution burden and vulnerability. . . . People in real life are simultaneously exposed to multiple contaminants from multiple sources and also have multiple stressors based on their health status as well as living conditions. Thus, the resulting cumulative health risk is also often influenced by nonchemical factors such as socioeconomic and health status of the people living in a community.¹⁹⁷

Reflecting this reality, CalEPA has adopted the following definition of cumulative impacts:

¹⁹² Natural Resources Defense Council, *Drilling in California: Who's at risk?* (NRDC 2014) at 13. <https://www.nrdc.org/sites/default/files/california-fracking-risks-report.pdf>.

¹⁹³ FracTracker Alliance (Apr. 2, 2020). *California Setback Analyses Summary*. <https://www.fracktracker.org/2020/04/california-setback-analysis-summary/> (FracTracker April).

¹⁹⁴ FracTracker Alliance, Recommendations for an EIR to Prioritize Kern County Frontline Community, September 16, 2020, <https://www.fracktracker.org/2020/09/kern-eir-ej/>.

¹⁹⁵ FracTracker April.

¹⁹⁶ *Id.*

¹⁹⁷ California Environmental Protection Agency, Office of Environmental Health Hazard Assessment. (Jan. 2017). *CalEnviroScreen 3.0* at 1. <https://oehha.ca.gov/media/downloads/calenviroscreen/report/ces3report.pdf>.

Cumulative impacts means exposures, public health or environmental effects from the combined emissions and discharges, in a geographic area, including environmental pollution from all sources, whether single or multi-media, routinely, accidentally, or otherwise released. Impacts will take into account sensitive populations and socioeconomic factors, where applicable and to the extent data are available.¹⁹⁸

Cumulative impacts are a particular concern for communities in the County where, as described in the previous subsection, oil and gas drilling most frequently occurs in communities that are already overburdened by environmental pollution and other stressors and therefore particularly susceptible to adverse health consequences.¹⁹⁹

For example, the fact that area-wide air quality in the County is already so poor heightens the need to maintain a buffer between communities and oil and gas drilling. Shonkoff and Hill (2019) concluded that emissions from upstream oil and gas emissions—themselves—were sufficiently harmful to justify protective setbacks.²⁰⁰ But residents in the County are subjected to many other sources of air pollution as well, and already experience some of the nation's worst air quality for criteria air pollutants.²⁰¹ Upstream oil and gas development exacerbates these harmful regional levels of ambient air pollution.^{202,203} This is especially true in the County where, by 2035, oil and gas drilling is expected to emit an enormous share of all air pollution countywide, including 40 percent of all fine particulate matter (PM_{2.5}) emissions county-wide, 70 percent of all nitrogen oxide emissions county-wide, and 97 percent of all sulfur dioxide emissions county-wide.²⁰⁴

Poor air quality is not the only cumulative impact faced by communities in the County. As Johnston and Cushing (2020) explained: “New and legacy industries, coupled with climate change, present unique health risks to communities living near industry due to the release of toxic chemicals. Cumulative impacts from multiple stressors faced by environmental justice communities may amplify these adverse effects.”²⁰⁵

¹⁹⁸ *Id.* at 5.

¹⁹⁹ NRDC (2014) at 11-15.

²⁰⁰ Shonkoff and Hill (2019) at 4.

²⁰¹ American Lung Association. (2020). *State of the Air 2020* at 5, 20-25. <http://www.stateoftheair.org/assets/SOTA-2020.pdf>.

²⁰² Shonkoff and Hill (2019) at 16 (collecting studies).

²⁰³ See also Gonzalez et al. (2020). Using data from the US EPA Air Quality System, Gonzalez et al. (2020) observed that significantly higher concentrations of particulate matter at the most exposed air monitors in months with more drilling activity, compared to months with less drilling.

²⁰⁴ Kern County Planning & Community Development Department. (2015). *Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015*, Vol. 1 at 4.3-120, Table 4.3-42. <https://kernplanning.com/environmental-doc/environmental-impact-report-revisions-kern-county-zoning-ordinance-2015-c-focused-oil-gas-local-permitting/>.

²⁰⁵ Johnston, J., & Cushing, L. (2020) Chemical Exposures, Health, and Environmental Justice in Communities Living on the Fenceline of Industry. *Current Environmental Health Reports*, 7(1):48-57. <https://doi.org/10.1007/s40572-020-00263-8>.

Moreover, cumulative impacts are not limited to environmental hazards. According to Morello-Frosch et al. (2011), “Racial or ethnic minority groups and low-income communities have poorer health outcomes than others.” These outcomes are not solely driven by more frequent exposure to environmental hazards; frontline community members are also “more frequently exposed to . . . social stressors, including poverty, poor housing quality, and social inequality.”²⁰⁶

All of these facts concerning cumulative impacts should have been considered by the County with respect to the 2,500’ setback alternative. Failure to do so is a significant flaw in the SREIR.

3. *The County’s Conclusion that Takings Jurisprudence Precludes a Setback is Irrational.*

The County grounded its rejection of the 2,500-foot setback alternative primarily in the contention that this alternative would expose the County to takings liability. This argument is neither rational nor supportable, for the reasons explained in more depth below. In the first instance, the County never even tries to explain why a 2,500-foot setback would subject it to liability where lesser setbacks—both the County’s and the many other setbacks in place in California localities and other oil and gas producing states—do not. The County furthermore presents no legal analysis to support its claim; and its legal analysis of the well permitting limitation aspect of the alternative (to the extent it may be intended to apply to setbacks as well) is both paper-thin and wrong. And the County makes no attempt to explore commonly-used means by which a setback could be crafted so as to avoid or minimize takings liability. Overall, the takings discussion fails to recognize that takings law is highly fact-specific, and hence cannot be used as a blunt instrument to summarily dispatch any and all options for an environmentally protective setback.

i. *The County Failed to Demonstrate Why a 2,500-Foot Setback Would Necessarily Result in Takings Liability Where Other Setbacks Do Not.*

The takings analysis of the 2,500-foot setback is presented in a single paragraph that is devoid of legal analysis or citation. The paragraph merely asserts that in some cases, the resources underlying a setback buffer might be accessible only via distance drilling, and that in a subset of those cases, distance drilling might not be feasible. Hence, the County concludes, it could be liable for a takings claim, which purportedly requires taking the setback alternative out of consideration.

This sweepingly general argument proves far too much. It fails to explain how, if setbacks necessarily result in takings liability, setbacks are alive and well and on the books in most oil and gas producing states, many California municipalities, and *in the Ordinance itself*. If establishing a setback risks the possibility that mineral owners’ rights to access their minerals

²⁰⁶ Morello-Frosch, R., Zuk, M., Jerrett, M., Shamasunder, B., Kyle, A. D. (2011). Understanding the cumulative impacts of inequalities in environmental health: implications for policy. *Health Affairs (Millwood)*, 30(5): 879-887. doi:10.1377/hlthaff.2011.0153.

might be extinguished, and this possibility renders them a non-starter, why did the County adopt a 210-foot setback, and why is that setback not vulnerable to challenge? The County presents no data or analysis to show whether or how the liability risk changes with the larger setback.

The pervasiveness of setbacks in other jurisdictions—many significantly larger than the minimal setback in the Ordinance—underscores the baselessness of the County’s assertion that significant setbacks cannot be considered due to takings liability. Setbacks are a common regulatory approach used in a wide range of places throughout the country. Indeed, “California is generally an outlier in its lack of a statewide minimum setback requirement.”²⁰⁷ For example, Colorado enacted a variable statewide setback for wells and production facilities in 2013, set at 350 feet from outdoor recreational areas like playgrounds and sports fields, 500 feet from all occupied buildings, and 1,000 feet from high-occupancy buildings including schools and child care centers.²⁰⁸ North Dakota has imposed a statewide 500-foot setback requirement since 2013, prohibiting drilling permits for new oil or gas wells within 500 feet of occupied dwellings.²⁰⁹ And Maryland adopted its statewide setback in 2016, requiring 1,000 feet between oil and gas production wells and the property lines of any houses, schools, and faith institutions.²¹⁰

Indeed, other states are currently moving in the direction of implementing much larger setbacks than they currently have on the books. On September 8, 2020, four of the five commissioners on the Colorado Oil and Gas Conservation Commission voiced support for an expanded 2,000-foot setback.²¹¹ And on June 25, 2020, a Pennsylvania grand jury, after heavily criticizing the state’s Department of Environmental Protection for failing to protect the public from the health effects of fracking, recommended a setback of 2,500 feet.²¹²

Local jurisdictions in other states have also employed setbacks with larger distances for many years. Since 2009, Santa Fe County, New Mexico has prohibited oil and gas facilities within 750 feet from any inhabited dwelling or building used as a place of assembly, school, or institution.²¹³ San Miguel County, New Mexico adopted a 4,000-foot setback from inhabited dwellings and buildings used as places of assembly, church, or school, and a 1,000-foot setback

²⁰⁷ Elkind, E.N. & Lamm, T. (Apr. 2020). *Legal Grounds: Law and Policy Options to Facilitate a Phase-Out of Fossil Fuel Production in California* at 30. <https://www.law.berkeley.edu/wp-content/uploads/2020/04/Legal-Grounds.pdf>.

²⁰⁸ 2 Colo. Admin. Code, § 404-1:604(a)(1), (a)(3), (a)(4).

²⁰⁹ N.D. Stats. § 38-08-05(2) (A drilling permit may still issue if the setback requirement is “waived by the owner [of any occupied dwelling within 500 feet] or if the commission determines that the well location is reasonably necessary to prevent waste or to protect correlative rights.”).

²¹⁰ Md. Code, Environment, tit. 14, § 14-112(a); Shonkoff and Hill (2019) at 37.

²¹¹ “Colorado regulators back 2,000-foot setback for new oil and gas drilling in ‘paradigm shift,’” *Colorado Sun* September 9, 2020. <https://coloradosun.com/2020/09/09/colorado-oil-gas-setback-2000-feet/>.

²¹² Office of the Attorney General for the Commonwealth of Pennsylvania, June 25, 2020, *Report 1 of the Forty-Third Statewide Investigating Grand Jury*, at 94. <https://www.attorneygeneral.gov/wp-content/uploads/2020/06/FINAL-fracking-report-w-responses-with-page-number-V2.pdf>.

²¹³ Santa Fe County Code of Ordinances, tit. 15, ch. 150, § 11.26.1(a), (b); Shonkoff and Hill (2019) at 38.

from non-residential uses including cultural resources, parks, and recreation areas.²¹⁴ A number of cities in Texas have also adopted setbacks, despite the overall minimal regulatory control over oil and gas operations there as a whole.²¹⁵ Dallas established a 1,500-foot setback in 2013 between gas drilling and production operations and the property boundaries of “protected uses” including homes, schools, faith institutions, and other community services.²¹⁶ Flower Mound adopted a 1,500-foot setback as well in 2011.²¹⁷ That ordinance makes it “unlawful to drill, re-drill, deepen, re-enter, activate or convert any oil or natural gas well, for which the closest edge of construction or surface disturbance is located” within 1,500 feet from any public park, residence, faith institution, hospital, or school, and within 750 feet “of any public street, road, highway, or right-of-way line.”²¹⁸

And California already has several existing setback requirements at the local level that are more robust than the 210-foot setback in the Ordinance (albeit in most cases still inadequate)²¹⁹—in the case of Ventura County, matching the distance recommended by Commenters. The Ventura County Board of Supervisors voted on September 1, 2020 to approve a 2,500-foot setback buffer from oil wells.²²⁰ Orange County further has a 1,320-foot setback between oil wells and declared scenic and recreational areas.²²¹ Additionally, the City of Carson adopted a 750-foot setback in 2015 between oil and gas sites and “the property boundaries of any residence” as well as “any public school, public park, clinic, hospital, [and] long-term health care facility.”²²² The City of Arvin developed a similar setback, set at 300 feet, in 2018.²²³ Setbacks set at 300 feet are perhaps the most common of those currently existing in the state, with Huntington Beach, Signal Hill, and Los Angeles County all employing setbacks at this distance. Huntington Beach adopted its setback requirement twenty years ago, in 1990, making it unlawful to drill any wells “[w]ithin 300 feet of any building used as a place of public assembly, institution or school.”²²⁴ In Signal Hill, wells cannot be drilled 300 feet “from any place of public assemblage, institution, hospital, or school.”²²⁵ And in Los Angeles County, oil drilling cannot occur “within 300 feet of any residence” since 2013²²⁶; and a proposed ordinance would

²¹⁴ San Miguel County Ordinance No. 11-12-14-O&G, § 2124.12.1.

²¹⁵ Shonkoff and Hill (2019) at 38 (listing setbacks in the cities of Arlington and Fort Worth in Texas).

²¹⁶ City of Dallas Code of Ordinances, vol. III, ch. 51A, art. IV, § 51A-4.203(b)(3.2)(F)(ii)(aa), (ee); Shonkoff and Hill (2019) at 38.

²¹⁷ Shonkoff and Hill (2019) at 38.

²¹⁸ Town of Flower Mound Code of Ordinances, part I, subpart A, ch. 34, art. VII, § 34-422(d)(1).

²¹⁹ See Cal. Dept. of Justice, Office of the Attorney General, letter to the City of Arvin re Arvin’s proposed setback ordinance, June 8, 2018 (explaining the city’s authority to adopt zoning and setback provisions for oil and gas sites).

²²⁰ “Ventura County Approves Nation’s First 2500 foot health, safety setback from oil wells as CA permits to drill new wells increase 190%,” *Elk Grove News.net* September 3, 2020.

<http://www.elkgrovenews.net/2020/09/supporters-of-2500-foot-health-and.html>

²²¹ Orange County Code of Ordinances, tit. 7, div. 8, § 7-8-34(a)(4).

²²² City of Carson Mun. Code, art. IX, ch. 5, § 9521(A)(1), (A)(2); Shonkoff and Hill (2019) at 37.

²²³ City of Arvin Mun. Code, tit. 17, ch. 17.46, § 17.46.022(A)(1), (A)(2); Shonkoff and Hill (2019) at 37.

²²⁴ Huntington Beach Mun. Code, tit. 15, ch. 15.20, § 15.20.030(D).

²²⁵ Signal Hill Mun. Code, tit. 16, ch. 16.16, § 16.16.030(B)(5).

²²⁶ Los Angeles County Code, tit. 22, ch. 22.140, § 22.140.400(C)(3); Shonkoff and Hill (2019) at 37.

expand that distance to 500'.²²⁷ Residents in Los Angeles have been advocating for a bigger, more protective distance for years, however, and the City is now considering larger setbacks between oil and gas operations and homes, schools, churches, and healthcare facilities.

These lists are not exhaustive, but they paint a picture that contravenes the County's facile and unsubstantiated assertion that a setback larger than the one in the Ordinance is infeasible due to takings liability. Almost all of the setbacks referenced above have been in place for years, in some instances for over a decade. In other words, setbacks are legally sound and employed often.

ii. *The County's Legal Conclusion Regarding Takings is Both Devoid of Analysis and Incorrect.*

The County's conclusion that a 2,500-foot setback would open it up to legal liability, in addition to being unsupported, is highly questionable. The reason the scores of setback regulations on the books elsewhere have not been wiped away by takings claims is that the law establishes a high bar for proof of takings claims, and leaves wide room for governments to legislate for the public welfare even at the expense of some individuals' ability to profit from their land.

When takings claims do arise, the law calls for a nuanced and fact-specific analysis of the surrounding circumstances and the economic impact on the plaintiff. In the case of a regulatory taking, courts balance a number of different factors based on the particular facts and circumstances in the case: (1) the character of the governmental action, (2) the economic impact of the regulation on the owner, and (3) the extent to which the regulation has interfered with distinct investment-backed expectations.²²⁸ A property owner cannot claim a categorical taking unless the regulation in question wipes out essentially all value of their land, with no other uses available for it.²²⁹

Thus, simply stating that in some cases fossil fuels would be rendered inaccessible by the setback does not inform the question of whether takings liability would ensue. That question could only be answered by evaluating the circumstances surrounding individual wells, including analysis of the impact of the loss of access on the mineral rights owner and the degree to which the owner has been able to meet any reasonable investment-backed expectations. To the extent the County's claim is merely that the setback would create a potential risk of takings liability in as-applied challenges, it has not presented anywhere near sufficient information to evaluate that

²²⁷ Proposed amendments to Title 22 Oil Well Ordinance, http://planning.lacounty.gov/assets/upl/data/2020-04-13-draft_oil_well_ordinance.pdf.

²²⁸ *Penn Central Transportation Co. v. New York City* 438 U.S. 104, 124 (1978).

²²⁹ *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003 (1992). This principle applies even though mineral rights may be owned separately from the surface parcel. See *Machipongo Land and Coal Co. v. Commonwealth*, 799 A.2d 751, 769-70 (Pa. 2002) (rejecting a request to consider the diminution of value in mineral and surface estates alone, even though could be severed and held separately); see also *Penn Cent. Transp. Co.*, 438 U.S. at 130 (“‘Taking’ jurisprudence does not divide a single parcel into discrete segments and attempt to determine whether rights in a particular segment have been entirely abrogated.”).

risk—in particular, as discussed in the previous subsection, why and how the risk changes with an increased setback distance. Moreover, any takings analysis would incorporate consideration of the harms the oil and gas industry inflicts on its neighbors, and the County’s aim of protecting public health and the environment would weigh heavily against the imposition of takings liability.²³⁰ Takings claims also fail where the returns on investment are speculative, or where the industry is highly regulated and owners should reasonably expect limitations on the activity.

Finally, while the two cases that the County does cite on the issue of takings are presented to address the Fewer Wells Alternative rather than the setback, it bears note that those cases are outdated and not informative.²³¹ Both cases were as-applied challenges involving particular circumstances that may or may not ever come to pass in the event a setback is put into place. In any event, courts have repeatedly reaffirmed, both before and after the *Braly* and *Bernstein* decisions, that local governments have broad latitude to restrict oil production in furtherance of the public welfare.²³²

iii. *The County Failed to Consider Available Means to Minimize or Eliminate Potential Takings Liability.*

To the extent the County is concerned with the risk of as-applied takings challenges to a setback, it should have explored the means by which that risk can be mitigated or eliminated rather than using that supposed risk as a blanket excuse to take the 2,500-foot setback out of consideration entirely. Local governments often address potential takings liability by adopting “savings clauses” that prevent application of an ordinance in an unconstitutional manner.²³³ A state agency might similarly attempt to mitigate takings liability by including potential

²³⁰ *Keystone Bituminous Coal Ass’n v. DeBenedictis*, 480 U.S. 470, 488 (1987) (viewing as important to takings analysis that “the Commonwealth is acting to protect the public interest in health, the environment, and the fiscal integrity of the area”); see also *Appollo Fuels, Inc. v. United States*, 381 F.3d 1338, 1347 (Fed. Cir. 2004) (there is no taking where there is a nuisance, regardless of other factors).

²³¹ SREIR at 6-15, citing *Braly v. Board of Fire Commissioners of City of Los Angeles*, 157 Cal. App. 2d 608, 616 (1958); *Bernstein v. Bush*, 29 Cal. 2d 773, 780 (1947). See also section VII.A.2.i, *supra*, for further discussion of takings liability in the context of decreasing drilling. The arguments in that section may also be relevant here.

²³² *Beverly Oil Co. v. City of Los Angeles*, 40 Cal.2d 552, 558 (1953) (“It must be deemed to be well settled that the enactment of an ordinance which limits the owner’s property interest in oil bearing lands located within the city is not of itself an unreasonable means of accomplishing a legitimate objective within the police power of the city.”) *Friel v. Los Angeles County*, 172 Cal.App.2d 142, 157 (1959) (Zoning ordinance prohibiting oil production in certain locations “is not confiscatory, arbitrary, oppressive, unreasonable or void as to the appellants. The mere fact, if it is a fact, that they suffer some money detriment, does not require that the ordinance be declared to be invalid.”). *Marblehead Land Co. v. City of Los Angeles*, 47 F.2d 528, 532 (1931) (“[T]here can be no question of the inherent right of the city to control or prohibit such [fossil fuel] production, provided it is done reasonably and not arbitrarily. In that event the loss must fall upon the owner whether it prevents him from erecting structures or establishing industries which he desires to erect or establish, or whether it prevents him from developing the inherent potentialities of his land.”).

²³³ See, e.g., *Home Builders Ass’n v. City of Napa*, 90 Cal. App. 4th 188, 199 (2001); *San Mateo County Coastal Landowners’ Ass’n v. County of San Mateo*, 38 Cal. App. 4th 523, 546-47 (1995).

exceptions where owners are able to demonstrate that application of the setback regulation would effect a taking. Commenters are not necessarily endorsing any such measures, but to the extent the County uses potential takings liability as a rational for its decision, reason dictates consideration of means to avoid such liability.

In the same vein, while Commenters are of the view, as explained above, that 2,500 feet is a minimum protective setback, to the extent the County's position is that potential takings liability becomes an intolerable risk somewhere between 210 feet and 2,500 feet, it was incumbent upon the County to identify and explain that tipping-point distance. To the extent that tipping-point distance is a function of the health benefit rationale for the setback, the County owes an explanation for that determination as well (and in any event, as described in the previous section, the County has not provided a credible assessment of the health benefits of a setback).

Additionally, the County could have conducted a study of oil investment amortization to determine the extent to which "reasonable investment-backed expectations" have been met. Culver City has conducted such a study in support of its plan to phase out oil production in its Inglewood Oil Field.²³⁴ The authors concluded that initial investment in the oil field was recovered years ago, and even for an operator that acquired wells recently had achieved amortization of its capital investment within 4 years.

The County might likewise adopt an administrative process that potentially could allow for a phase-out period—or, if there were already a phase-out period, an extension of the phase-out period – in the uncommon circumstance that an operator could demonstrate that such a period would be necessary to avoid takings liability. Any such administrative process should be open to the public and allow for public participation, and must weigh, among other things, the countervailing harm to the public by the continuation of existing operations, the speculative nature of oil and gas production, the remediation costs associated with retiring wells, and alternative uses for the property.

4. *The County Irrationally Conflated the Setback Alternative with the Fewer Wells Alternative.*

The alternative considered and rejected by the County was not for establishment of setbacks alone, but a combined proposal of 2,500-foot setbacks plus a cap on the number of wells allowed to be permitted. There was no rational basis for conflating these two different concepts, and doing so needlessly skewed the analysis of a setback. The setback alternative should have been considered separately and independently of the well permitting cap.

The rationale for a setback is substantially different from the rationale for a well permitting cap. A setback is intended to keep the impacts of drilling from impacting specified sensitive receptors. A well permitting cap will not necessarily achieve this objective, to the extent the wells falling under the cap are drilled in the vicinity of those receptors. The primary function of a well permitting cap is to address the more generalized and regional harm associated

²³⁴ *Capital Investment Amortization Study for the City of Culver City Portion of the Inglewood Oil Field*, available at <https://www.culvercity.org/home/showdocument?id=19134>.

with drilling (e.g., ground level ozone and greenhouse gas pollution) rather than the highly localized impacts that affect sensitive receptors (e.g., air toxics, noise).

The analytical problem is compounded by the fact that the County grounded its rejection of both aspects of the proposed alternative in takings concerns. As discussed in the previous section, takings jurisprudence places strong emphasis on the character of the governmental action, one of the prongs in the *Penn Central* test. Since the character and rationale for a setback versus a well cap differs, the takings analysis must differ as well; but the County has provided insufficient analysis to determine how that difference plays out in the takings context.

B. The Draft SREIR Unlawfully Refuses to Analyze Additional Alternatives.

1. Drilling Ban on Agriculturally Productive Land Alternative

This alternative, which would “prohibit all new oil and gas exploration, development, and production activities on lands zoned either Exclusive Agricultural (A) or Limited Agricultural (A-1), if such land is being used for agricultural production at the time of drilling permit application,” was rejected for several reasons. Draft SREIR at 6-12. First, the Draft SREIR states that because the Ordinance’s agricultural mitigation program would not apply, “there would be less agricultural lands conserved in perpetuity in the County[, and] there would be less restoration of agricultural lands to productive use through the removal of legacy oil and gas production equipment.” Draft SREIR at 6-12. The County seemingly failed to update the description of this alternative from the 2015 FEIR to incorporate the Draft SREIR’s new position that mitigation through the removal of legacy oil and gas production equipment is infeasible. Draft SREIR at 4.2-30-4.2-31. Regardless, the position that it is better for agricultural land to allow oil and gas drilling on it than to prohibit such drilling is untenable and not supported by substantial evidence. Furthermore, prohibiting drilling on agriculturally productive land does not preclude restoring other agricultural lands by removing legacy equipment.

The Draft SREIR also states that, under this alternative, “it is more likely that otherwise prohibited oil and gas activities on agricultural lands would be displaced to non-agricultural lands with greater habitat and wildlife resource values than are typically found on previously disturbed and actively farmed irrigated agricultural land, potentially causing greater overall environmental harm.” Draft SREIR at 6-12. However, the Draft SREIR does not provide adequate analysis to substantiate this possibility.

The Draft SREIR states that “[t]his alternative *could* result in more horizontal and directional subsurface drilling activities needed to recover subsurface oil and gas,” which “would generate greater toxic air, greenhouse gas, and air quality contaminant emissions than the proposed Project.” Draft SREIR at 6-12 (emphasis added). However, the Draft SREIR fails to provide sufficient detail or analysis regarding the potential impacts of this alternative, and fails to weigh the benefits of banning drilling on agriculturally productive land against the potential increased impacts. Nor does it consider an alternative that prohibits horizontal and directional drilling to access oil and gas located beneath agricultural zoning districts.

2. Drilling Ban on All Lands Alternative

The County's reasons for eliminating this alternative from further consideration are arbitrary and unacceptable. The County must analyze this alternative. The County's first reason is that this alternative "would not achieve most Project objectives." Draft SREIR at 6-13. Several of these objectives, however, are improper. Specifically, "[i]ncreas[ing] oil and gas exploration and production in Kern County" (Draft SREIR at 6-11)—which is included in two of the applicants' enumerated objectives—is an improper project purpose that conflicts with the goal of decreasing reliance on fossil fuels such as oil and natural gas.²³⁵ The County's second reason for refusing to analyze this alternative is that it is "infeasible due to existing legal restrictions on the County's authority to prohibit access to subsurface mineral interests without liability." Draft SREIR at p. 6-13. It is not clear what this means, however, and there is no additional explanation for why this alternative is legally infeasible.

3. Zero Net Gain Alternative

The County rejected this alternative "because it would not achieve most of the Applicant's Project objectives," including its objectives to "achieve an efficient and streamlined environmental review and permitting process for all oil and gas operations covered by the Project"; to "provide for economically feasible and environmentally responsible growth of the Kern County oil and gas industry"; and to "increase oil and gas exploration and production in Kern County. . . ." Draft SREIR at 6-19-6-20. As discussed above, growth of the oil and gas industry and increasing oil and gas exploration and production are not proper project objectives. As such, they cannot be used as a rationale for refusing to analyze feasible alternatives.

Regardless, substantial evidence does not support the conclusion that this alternative would fail to achieve the Ordinance's objectives. According to the Western States Petroleum Association (WSPA),

While the number of applications for new wells may have increased, the number of permits for plugging and abandoning . . . wells has outpaced new wells since 2016, leading to a net *reduction* in the number of wells in the state, not an increase. . . . Furthermore, the number of permits issued for plugging and abandoning wells in 2018 was 143% higher than the number approved in 2017 and has continued to increase in 2019 and 2020."²³⁶

Thus, according to WSPA, the zero net gain alternative is nothing more than a continuation of the status quo. The County must address WSPA's position in its final SREIR and explain how this alternative interferes with achievement of the Ordinance's objectives.

²³⁵ See, e.g., Health & Safety Code, § 38566; Gavin Newsom, Governor, May Revision 2019-20, at p. 74, <http://www.ebudget.ca.gov/2019-20/pdf/Revised/BudgetSummary/FullBudgetSummary.pdf> ("The [budget] recognizes the need for careful study and planning to decrease demand and supply of fossil fuels . . .").

²³⁶ Western States Petroleum Assn., *Our Energy Future Must Be Shaped by Facts, Not Fears* (Sept. 3, 2020), https://www.wspa.org/resource/our-energy-future-must-be-shaped-by-facts-not-fears-the-truth-about-oil-and-gas-permitting-in-california/#_ftn1.

The County also rejected this alternative on the ground that it could expose the County to takings liability by imposing a regulatory cap on the volume of oil and gas production in the Project Area. For reasons described at sections VII.A.2.i and VIII.A.3, this concern is unsupported in the Draft SREIR and by relevant law.

0009-92
Cont'd

C. The Draft SREIR Unlawfully Rejects Several Alternatives.

0009-93

The Draft SREIR impermissibly dismisses several alternatives that, if appropriately analyzed and characterized, could reduce environmental impacts. Despite identifying environmental benefits associated with several of these alternatives, the Draft SREIR determines that five of the six alternatives are not environmentally superior to the Ordinance. The Draft SREIR does not adequately support its conclusion that only Alternative 5 (Low-Emission Enhanced Oil Recovery Technology Alternative) is “environmentally superior.” Draft SREIR at 6-37. Furthermore, the Draft SREIR could combine the benefits of various alternatives.

0009-94

1. “No Project” Alternative (Alternative 1)

This alternative has not been given adequate consideration, and must be reconsidered. The Draft SREIR concludes that this alternative “is environmentally inferior to the proposed Project” because “none of the Project’s proposed development standards or conditions would be implemented in the County on a consistent basis for all new oil and gas wells in the future.” Draft SREIR at 6-22. The Draft SREIR states that Alternative 1 “would not create an effective regulatory and permitting process for oil and gas exploration and production,” but does not explain what it means by “effective.” Draft SREIR at 6-23.

Furthermore, this analysis ignores the Court of Appeal’s finding that “[t]he Ordinance’s primary purpose is the acceleration of oil and gas development,” and that the Ordinance causes “significant, adverse environmental impacts.”²³⁷ Project-specific, site-specific CEQA analysis is required because each location and each well in the County has its own set of environmental considerations and other concerns including, but not limited to: community and environmental justice concerns, local water supply and hydrology, geology, faults and seismology, neighboring wells (i.e. offset wells), and threatened or endangered species impacts. To ensure full disclosure of each drilling project’s local impacts and to adopt mitigation measures for those site-specific impacts, CEQA review at the level of individual oil and gas drilling projects is required.

2. CUP Alternative (Alternative 2)

0009-95

This alternative, “[i]n effect, . . . would amend the Zoning Ordinance to eliminate all unrestricted, and ministerial approval of, oil and gas exploration, development, and production activities.” Draft SREIR at 6-23. Even though this “would require a discretionary conditional use permit approval from the County that would incorporate site-specific and project-specific conditions of approval to minimize or avoid each project’s potential environmental effects,” the Draft SREIR nevertheless concludes that “Alternative 2 is ultimately environmentally inferior to the proposed Project.” Draft SREIR at 6-24. The Draft SREIR’s assertion that it is less

²³⁷ *King & Gardiner Farms, LLC v. County of Kern*, 45 Cal. App. 5th 814, 898 (2020).

environmentally protective to “consider the potential environmental effects each oil or gas well permitted in the County on a case-by-case basis”—and that it is preferable to implement a one-size-fits-all approach that precludes project-specific, site-specific CEQA review—is unconvincing and unsupported by substantial evidence.

The County further asserts that this alternative “would not streamline the County’s current oil and gas permitting procedures because it would impose a lengthy and cumbersome discretionary permitting process on all new oil and gas development within the County.” Draft SREIR at 6-25. Attempting to eliminate comprehensive environmental review in order to create a “streamlined” regulatory process for the benefit of the oil industry is improper. Moreover, the County’s contention that it does not have the resources to process sufficient CUPs is not supported by substantial evidence, particularly given that the County does not discuss the possibility of charging a fee for processing.

3. Reduced Ground Disturbance Alternative (Alternative 3)

This alternative would “prohibit all new well drilling activities outside existing CalGEM-designated ‘Administrative Boundary’ areas”; “require subsurface oil and gas to be extracted from surface equipment located within such Administrative Boundary areas”; and “limit the disturbance footprint on existing agricultural lands to requiring clustering of new wells in locations immediately adjacent to existing oil and gas equipment.” Draft SREIR at 6-25-6-26. The Draft SREIR notes that this alternative would “result in less overall ground disturbance than the Project,” thereby reducing impacts to agricultural, biological, aesthetic, and hydrologic resources, but finds that because it would lead to more horizontal and directional subsurface drilling activities, it would increase air quality, greenhouse gas, and toxic air emission impacts. Draft SREIR at 6-26. However, the Draft SREIR does not provide adequate information regarding the magnitude of these potential impacts, and also fails to weigh the reduced environmental impacts against the potential increased impacts. The Draft SREIR also fails to consider an alternative that is identical to Alternative 3 but does not allow horizontal and directional drilling to access oil and gas outside of the Administrative Boundary areas.

The County also rejected this alternative on the ground that it could expose the County to takings liability because, “in some instances, the owners of mineral interests underlying lands outside of Administrative Boundary areas will not be able to feasibly exercise their mineral rights as a result of the drilling restrictions assumed by this alternative.” Draft SREIR at 6-27. This conclusion is internally inconsistent with the finding on the previous page that this alternative is legally feasible because it “assumes that subsurface oil and gas resources located outside of existing Administrative Boundary areas could still be accessed from inside existing Administrative Boundary areas through use of directional and horizontal drilling techniques.” Draft SREIR at 6-26. Regardless, for the reasons described at sections VII.A.2.i and VIII.A.3, the discussion in the Draft SREIR falls far short of establishing that this alternative exposes the County to takings liability to an extent that would render the alternative infeasible.

4. No Hydraulic Fracturing Alternative (Alternative 4)

The Draft SREIR states that a ban on fracking “*could* cause an increased use of EOR techniques in the Project Area, which would cause a corresponding increase in the emission of greenhouse gases and criteria air pollutants.” Draft SREIR 6-28 (emphasis added). The Draft SREIR fails to provide adequate information regarding the likelihood of increased use of EOR techniques, or sufficient detail regarding the resulting impacts. The Draft SREIR also determines the California Council on Science & Technology’s study *Independent Scientific Assessment of Well Stimulation in California* (“CCST Report”) concludes that disallowing well stimulation “would likely result in an overall increase in greenhouse gas emissions without an overall increase in other adverse environmental impacts.” Draft SREIR at 6-28. This analysis ignores the fact that hydraulic fracturing is commonly used to extend the life of existing oil wells with declining production and related infrastructure, resulting in additional significant impacts from the continued production of fossil fuels in these areas. Moreover, the CCST Report source itself concludes that more study is needed regarding the emissions impacts of disallowing well stimulation.²³⁸ And that same source expresses myriad concerns about hydraulic fracturing that the Draft SREIR overlooks entirely.

For example, the Draft SREIR fails to reference any of the CCST Report’s findings or its conclusions regarding the need to assess the adequacy of regulations to address the numerous indirect impacts of fracking²³⁹; the need to limit the use of poorly understood chemicals in fracking and related well-stimulation activities²⁴⁰; the need to properly manage all produced water from hydraulically fractured or acid stimulated wells appropriately²⁴¹; the need to test for and evaluate groundwater chemistry regularly²⁴²; the need to comprehensively evaluate trade-offs in determining whether to used certain waste water disposal practices²⁴³; and the need to add protections to avoid groundwater contamination from fracking and related well-stimulation activities.²⁴⁴

The CCST Report also finds that leakage of highly dangerous fracking chemicals can and does occur from numerous wells throughout the state,²⁴⁵ and that emissions concentrated near all oil and gas production could present serious health hazards to nearby communities.²⁴⁶

The Draft SREIR’s omission of information from the Report that specifically focuses on oil and gas activities in Kern County and its surrounding area is particularly egregious, in light of the Report’s clear insights into the need for further review of the Ordinance’s impacts. For

²³⁸ CCST, *Independent Scientific Assessment of Well Stimulation in California*, Vol. 2, at p. 41 (July 2015).

²³⁹ *Id.* at p. 19.

²⁴⁰ *Id.* at pp. 16-18.

²⁴¹ *Id.* at pp. 22-25.

²⁴² *Id.* at p. 25.

²⁴³ *Id.* at pp. 32-34.

²⁴⁴ *Id.* at pp. 34-38.

²⁴⁵ *Id.* at pp. 38-39.

²⁴⁶ *Id.* at pp. 44-46.

example, Chapter Five of the CCST Report, entitled “Potential Impacts of Well Stimulation on Wildlife and Vegetation,” includes a section focused on Kern County, which “has the highest density of hydraulic fracturing and matrix acidizing in the state.”²⁴⁷

The Draft SREIR also fails to make use of the findings of the CCST Report’s case study of the potential risks associated with fracking in existing oil fields in the San Joaquin Basin. The case study “evaluates specific risks to water, air and public health associated with continued well stimulation in the San Joaquin Basin.”²⁴⁸ The introduction explains that the goal of the case study “is to develop an understanding of the risk from future well stimulation, with an emphasis on hydraulic fracturing, to water and air resources, public health, and wildlife and vegetation in the San Joaquin Basin.”²⁴⁹ Like the rest of the CCST report, the case study acknowledges future uncertainties that highlight the need for future environmental review.²⁵⁰

The Report notes that a “general concern about hydraulic fracturing is that stimulation chemicals could leak into the environment, including drinking water wells, via potential subsurface leakage paths.”²⁵¹ Because most fracking in the San Joaquin Basin currently occurs at depths shallower than 1,000 feet, this can “present a hazard if there is nearby protected groundwater.”²⁵² Furthermore, reservoirs in the basin “have a high density of existing wells, which may provide potential pathways for leakage of stimulation fluids into groundwater,” and the density of faults in the basin “indicates that tens of shallow hydraulic fractures each year may intersect faults that are sufficiently large to potentially extend to protected groundwater.”²⁵³ Although “[n]o incidents of groundwater contamination due to stimulation have been found in the San Joaquin Basin to date” the Report points out that “*there has also been no targeted monitoring of groundwater quality*, nor have there been specific efforts to determine the extent of potentially compromised wellbore integrity.”²⁵⁴ In addition, “if leaks are relatively small, as can be expected for the majority of leaky wells, they are not easily detectable in the groundwater, even when dedicated monitoring is conducted.”²⁵⁵

The Draft SREIR further fails to account for the need to for additional information to assess the impacts of well stimulation activities. For example, with regard to water resources, the CCST notes the following uncertainties and data gaps, among others:

- Chemical additives: “100 chemicals could be the minimum number of completely unknown materials” (CCST Report, Vol. 2, at p. 81)

²⁴⁷ *Id.* at p. 316.

²⁴⁸ CCST Report, Vol. 3, at p. 270.

²⁴⁹ *Id.* at p. 269.

²⁵⁰ *See, e.g., id.* (“The risks that may occur in the future will depend on how production in the basin develops.”).

²⁵¹ *Id.* at p. 268.

²⁵² *Ibid.*

²⁵³ *Ibid.*

²⁵⁴ *Ibid.* (emphasis added).

²⁵⁵ *Ibid.*

- “The amount and fate of the injected fracturing fluids that is left behind in the subsurface is unknown” (*Id.* at p. 90)
- “The fraction of injected chemicals that return to the surface, and the time period over which they return, are unknown” (*Id.* at p. 98)
- “[M]ost groundwater sampling studies do not even measure stimulation chemicals, partly because their full chemical composition and reaction products were unknown” (*Id.* at p. 129)
- “The use of produced water from unconventional production raises specific or unique concerns, because of the variety of chemicals used during well stimulation that may end up mingled with produced water and the unknowns concerning the toxicity and environmental profile of those chemicals” (*Id.* at p. 114)
- “It is important to note that groundwater quality beneath the majority of active disposal pits, especially along the West San Joaquin Valley, is not known” (*Id.* at p. 141)
- “Currently, a large number of chemicals are used in well stimulation that have poor or unknown environmental profiles” (*Id.* at p. 148)
- “The types and amounts of well stimulation additives found in these waters is unknown, so it is not certain what treatment methods are adequate to allow reuse. Additionally, potentially hazardous chemicals resulting from degradation of the added chemicals and the interaction of the stimulation fluid with the formation need to be carefully evaluated” (*Id.* at p. 150)
- “Hydraulic fracturing fluids contain complex mixtures, and the interactions of these chemicals in the environment is unknown” (*Id.* at p. 156)
- “Lack of knowledge concerning the fate of the injected stimulation fluids in the subsurface, and the potential for them to be transformed, or to mobilize formation constituents over the lifetime of production from the well, needs to be determined. The nature of the reaction byproducts, the amounts and types of materials returning to the surface during the lifetime of the well, and hazards associated with these reaction byproducts are entirely unknown and need to be investigated” (*Id.* at p. 157)
- “Significant data gaps exist regarding current knowledge of groundwater quality in California, including the location and extent of protected groundwater that contains less than 10,000 mg L⁻¹ TDS” (*Id.* at p. 166)
- “The transport of contaminants through induced fractures to groundwater has not been established, but should be evaluated in California, where fracturing depths are much shallower than in other parts of the country. Other potential subsurface release mechanisms include leakage through compromised wells and leakage through natural

subsurface fractures, however the importance of these pathways is also unknown” (*Id.* at p. 166-67)

The Report further notes that additional data gaps and uncertainties in other areas exist, and points out that they should be addressed through increased review efforts and continued assessments of new information. These include the fact that there are significant gaps in “our understanding of the impacts of discharges of stimulation fluids and wastewater to wildlife and vegetation”²⁵⁶ and the fact that “[t]he quantity of specific chemicals emitted to the atmosphere per unit of injected well stimulation fluid is completely lacking from the existing literature.”²⁵⁷

IX. The Draft SREIR Fails To Consider and Incorporate New Information Pertaining To Other Environmental Impacts.

A subsequent or supplemental EIR must consider new information when one or more of three events occur: “(a) Substantial changes are proposed in the project which will require major revisions of the environmental impact report[;] (b) Substantial changes occur with respect to the circumstances under which the project is being undertaken which will require major revisions in the environmental impact report[; or] (c) New information, which was not known and could not have been known at the time the environmental impact report was certified as complete, becomes available.”²⁵⁸

Here, in the time since the Board adopted the Ordinance and certified the original EIR in November 2015, the circumstances under which the Project is being undertaken have substantially changed, and new scientific evidence has demonstrated the impacts of oil and gas activity to be substantially greater than acknowledged in the Draft SREIR. Moreover, the County has had experience since 2015 implementing the prior iteration of the Ordinance, which constitutes new information that should be brought to bear in evaluating its renewed issuance. Consequently, the County’s new CEQA process cannot be limited to a reexamination of the portions of the EIR found legally deficient by the Court of Appeal. In fact, “because significant new information has become available on each subject”, the County must also reevaluate and incorporate new circumstances as well as new research and studies on other oil and gas impacts that have become available in the last five years.²⁵⁹

A. The Draft SREIR Fails to Consider and Incorporate Substantial Changes to the Circumstances under Which the Project Is Being Undertaken.

Circumstances have changed significantly since the County certified the EIR in 2015. The COVID-19 global pandemic has caused nearly 200,000 deaths across the country and highlighted the intersection of the many burdens faced by frontline communities.²⁶⁰ Multiple

²⁵⁶ *Id.* at p. 261.

²⁵⁷ *Id.* at p. 436.

²⁵⁸ Pub. Resources Code, § 21166.

²⁵⁹ *King & Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814, 899.

²⁶⁰ *Covid in the U.S.: Latest Map and Case Count*, N.Y. Times, <https://www.nytimes.com/interactive/2020/us/coronavirus-us-cases.html> (as of Sept. 11, 2020).

studies have found that exposure to higher amounts of air pollution also increases a population's vulnerability to the coronavirus. A major study of air pollution and COVID-19 mortality in the United States found that exposure to even a small increase in fine particulate matter (PM_{2.5}) was linked to an 8 percent greater chance of dying from COVID-19.²⁶¹ Significantly, the California Department of Public Health has acknowledged that health outcomes “are affected by forces including structural racism [and] poverty,” and released statistics showing that people of color “are dying at disproportionately higher levels” from COVID-19.²⁶² Yet community members who face the highest risks from COVID-19—especially in Kern County—are being asked to stay home and shelter in place in close proximity to air-polluting oil and gas operations. The County should not add to these enormous and ongoing harms by authorizing even more oil and gas development.

The ensuing economic downturn further calls into question the justification for fast-tracking thousands of new well permit approvals, when demand for oil and gas is at historic lows. The price of oil has continued to collapse—even plummeting to negative prices in the past few months—and “it is unclear that the industry, in its current form, recovers at all.”²⁶³ Contrary to the narrative promoted by oil and gas companies, the industry's current financial problems are the result of circumstances that predate the COVID-19 pandemic, which merely exposed the industry's underlying fragility and accelerated the conditions already weakening it. Dwindling investor confidence, shrinking revenues, price volatility, and ever-increasing debts are characteristic for the industry, and necessitate a faster shift away from expansive fossil fuel development.

²⁶¹ Wu, X., Nethery, R.C., Sabath, M.B., Braun, D., Dominici, F., *Exposure to Air Pollution and COVID-19 Mortality in the United States: A Nationwide Cross-Sectional Study*, <https://projects.iq.harvard.edu/covid-pm/home>; see also Friedman, *New Research Links Air Pollution to Higher Coronavirus Death Rates*, N.Y. Times (Apr. 17, 2020), <https://www.nytimes.com/2020/04/07/climate/air-pollution-coronavirus-covid.html>; Chow, D.S. et al., *The Disproportionate Rise in COVID-19 Cases Among Hispanic/Latinx in Disadvantaged Communities of Orange County, California: A Socioeconomic Case-Series*, Johns Hopkins Bloomberg School of Public Health (2020), <https://www.medrxiv.org/content/10.1101/2020.05.04.20090878v1.full.pdf>; Goyal, M.K. et al., *Racial/Ethnic and Socioeconomic Disparities of SARS-CoV-2 Infection Among Children*, Pediatrics (2020), <https://pediatrics.aappublications.org/content/pediatrics/early/2020/08/03/peds.2020-009951.full.pdf>.

²⁶² Cal. Dept. of Pub. Health (June 3, 2020), *State Officials Announce Latest COVID-19 Facts* (News Release No. NR20-111), <https://www.cdph.ca.gov/Programs/OPA/Pages/NR20-111.aspx>.

²⁶³ *An Unprecedented Plunge in Oil Demand Will Turn the Industry Upside Down*, Economist (Apr. 8, 2020), <https://www.economist.com/briefing/2020/04/08/an-unprecedented-plunge-in-oil-demand-will-turn-the-industry-upside-down>; see also Wingfield et al., *Oil Markets Turning Bearish Amid Signs of Pandemic's Accelerating Economic Impact* (Sept. 9, 2020), <https://www.worldoil.com/news/2020/9/9/oil-markets-turning-bearish-amid-signs-of-pandemic-s-accelerating-economic-impact>.

The energy sector's prominence in the S&P 500 Index reflects the long-term, structural issues challenging the fossil fuel industry.²⁶⁴ During the 1980's, the energy sector commanded 25 percent of the S&P 500 Index. Over the last 40 years, its market weight has fallen precipitously; now it comprises only 4.3 percent of the index.²⁶⁵ In 2019, the energy sector finished last for the second year in a row, "posting a 7.3% gain, while the index as a whole rose 29% for the year."²⁶⁶ Indeed, the once-dominant oil giant Exxon Mobil was recently dropped from the Dow Jones Industrial Average, another widely followed American stock market index.²⁶⁷

Increases in fossil fuel production, particularly in the United States, continue to oversupply the global market, causing the price of oil to collapse. Oil dropped from \$100 - \$125 per barrel to \$62 per barrel at the end of 2014.²⁶⁸ Between 2016 and 2019, oil continued to trade in a narrow price range of \$44 to \$72 per barrel.²⁶⁹ According to Moody's, oil and gas companies have not "fully recovered from the 2015-16 oil price slump."²⁷⁰ The COVID-19 pandemic slowed demand even more. The price of oil plummeted to \$25 - \$35 per barrel, far below "the 'break even' point that producers need to drill new wells to maintain supply, and with volumes rapidly diminishing at existing wells."²⁷¹ For fossil fuel giants like Exxon, a price below

²⁶⁴ The S&P 500 energy sector is composed of oil and gas producers, equipment manufacturers, exploration and production, refining, storage, and transportation services. See Fidelity Investments, *Sectors & Industries Overview*, https://eresearch.fidelity.com/eresearch/markets/sectors/sectors/sectors_in_market.jhtml (as of Sept. 11, 2020).

²⁶⁵ See S&P Dow Jones Indices, *S&P 500 Sector Representation Spreadsheet*, <https://us.spindices.com/indices/equity/sp-500-energy-sector#overview> (as of Sept. 11, 2020).

²⁶⁶ Inst. for Energy Economics & Fin. Analysis (IEEFA), *IEEFA Update: Oil and Gas Stocks Place Dead Last in 2019, Again, Despite 30% Price Rise* (Jan. 9, 2020), <https://ieefa.org/ieefa-update-oil-and-gas-stocks-place-dead-last-in-2019-again-despite-30-price-rise/>.

²⁶⁷ Domonoske, *Exxon Mobil Exits: The Dow Drops Its Oldest Member*, NPR (Aug. 25, 2020), <https://www.npr.org/2020/08/25/905818004/exxon-mobil-exits-the-dow-drops-its-oldest-member>.

²⁶⁸ U.S. Energy Information Admin., *Crude Oil Prices Down Sharply in Fourth Quarter in 2014* (Jan. 6, 2015), <https://www.eia.gov/todayinenergy/detail.php?id=19451>.

²⁶⁹ U.S. Energy Information Admin., *Crude Oil Prices Increased in 2016, Still Below 2015 Averages* (Jan. 4, 2017), <https://www.eia.gov/todayinenergy/detail.php?id=29412>; U.S. Energy Information Admin., *Crude Oil Prices Increased in 2017, and Brent-WTI Spread Widened* (Jan. 3, 2018), <https://www.eia.gov/todayinenergy/detail.php?id=34372>; U.S. Energy Information Admin., *Crude Oil Prices End the Year Lower Than They Began the Year* (Jan. 3, 2019), <https://www.eia.gov/todayinenergy/detail.php?id=37852>; U.S. Energy Information Admin., *Crude Oil Prices were Generally Lower in 2019 Than in 2018* (Jan. 7, 2020), <https://www.eia.gov/todayinenergy/detail.php?id=42415>.

²⁷⁰ IEEFA (2019), *Bankruptcies in Fracking Sector Mount in 2019: E&P Companies' Debt of \$26 Billion Doubled Over Previous Year*, <https://ieefa.org/wp-content/uploads/2020/01/Bankruptcies-in-Fracking-Sector-Mount-in-2019-January-2020.pdf>.

²⁷¹ Beitsch, *Oil Price Drop Threatens US Fracking Boom*, The Hill (Mar. 27, 2020), <https://thehill.com/policy/energy-environment/489754-oil-price-drop-threatens-us-fracking-boom>; U.S. Energy Information Admin., *Petroleum & Other Liquids Spot Prices*, https://www.eia.gov/dnav/pet/pet_pri_spt_s1_d.htm (as of Sept. 11, 2020).

\$60 per barrel is considered unprofitable.²⁷² Growing oversupply has led to an onshore glut and operators rushing to find limited storage options, even resorting to floating storage with now “160 million barrels of oil sitting on tankers waiting for buyers.”²⁷³ Some of these tankers floated near the California coast for much of April and May this year, spewing “up to 15,000 tons of planet-warming CO₂ and 7,250 pounds of lung-harming PM_{2.5}” during that time and worsening the state’s already dire air quality.²⁷⁴

The volatility surrounding the price of oil has already caused many “companies [to] flounder under mounting debt and negative cash flows.”²⁷⁵ From 2015 through 2019, more than 200 North American oil and gas producers filed for bankruptcy.²⁷⁶ In July 2020, California’s largest oil and gas producer, California Resources Corporation, filed for Chapter 11 bankruptcy together with its subsidiaries, “seeking relief from \$5 billion in debt and looming interest payments” including \$25 million to Kern County.²⁷⁷ Since 2015, the oil field services sector—i.e., companies that rent, manufacture, and maintain equipment used in oil extraction and transportation—experienced nearly 200 bankruptcies.²⁷⁸ In 2019, 42 domestic fracking

²⁷² IEEFA (2020), *IEEFA Update: Bankruptcies Multiply for Fracking Sector* at 1, <https://ieefa.org/ieefa-update-bankruptcies-multiply-for-fracking-sector/>; IEEFA, *Comments Submitted to the Railroad Commission of Texas on the Matter of the Pioneer Natural Resources U.S.A. Inc. and Parsley Energy, Inc. Request for Determination of Reasonable Market Demand* (Apr. 7, 2020), at fn. 13, <https://ieefa.org/wp-content/uploads/2020/04/IEEFA-comments-to-the-RRC-of-Texas-April-7-2020.pdf>; see also West, *Just How Low Can Oil Prices Go and Who is Hardest Hit?*, BBC News (Jan. 18, 2016), <https://www.bbc.com/news/business-35245133> (commenting that oil prices below \$50 per barrel may stall production); Samuelson, *Key Facts About the Great Oil Crash of 2014*, Washington Post (Dec. 3, 2014), https://www.washingtonpost.com/opinions/robert-samuelson-key-facts-about-the-great-oil-crash-of-2014/2014/12/03/a1e2fd94-7b0f-11e4-b821-503cc7efed9e_story.html (commenting that 80 percent of projects planned for 2015 are profitable with oil prices between \$50 and \$69 a barrel).

²⁷³ Kumar & Hiller, *A Hunt for Any Storage Space Turns Urgent as Oil Glut Grows*, Reuters (Apr. 20, 2020), <https://www.reuters.com/article/us-global-oil-storage-fracking/a-hunt-for-any-storage-space-turns-urgent-as-oil-glut-grows-idUSKBN2230I3?il=0>.

²⁷⁴ Borunda, *As Oil Prices Crashed, Tankers Idled Off California—Spewing Pollution for Weeks*, National Geographic (June 12, 2020), <https://www.nationalgeographic.com/science/2020/06/coronavirus-oil-prices-crashed-tankers-idled-california-spewing-pollution/>.

²⁷⁵ IEEFA *Update: Bankruptcies Multiply for Fracking Sector*, <https://ieefa.org/ieefa-update-bankruptcies-multiply-for-fracking-sector/>.

²⁷⁶ Haynes & Boone, LLP, *Oil Patch Bankruptcy Monitor*, [https://www.haynesboone.com/-/media/Files/Energy Bankruptcy Reports/Oil Patch Bankruptcy Monitor](https://www.haynesboone.com/-/media/Files/Energy%20Bankruptcy%20Reports/Oil%20Patch%20Bankruptcy%20Monitor) (as of Sept. 12, 2020).

²⁷⁷ Wilson & Olalde, *California Resources Corp., Leading Oil and Gas Producer, Files for Chapter 11 Bankruptcy*, Desert Sun (July 15, 2020), <https://www.desertsun.com/story/news/environment/2020/07/15/crc-californias-largest-oil-and-gas-company-files-bankruptcy-protection/5446329002/>.

²⁷⁸ *Bankruptcies in Fracking Sector Mount in 2019*, <https://ieefa.org/wp-content/uploads/2020/01/Bankruptcies-in-Fracking-Sector-Mount-in-2019-January-2020.pdf>.

companies filed for bankruptcy,²⁷⁹ and an uptick is expected as the “structure of demand for oil and gas undergo[es] ‘massive transformation’ nationally and globally.”²⁸⁰

The recent wave of oil company bankruptcies increases the threat that producers will attempt to avoid their legal obligation to plug and abandon the nearly 107,000 active and idle oil and gas wells across the state.²⁸¹ The California Council on Science and Technology (CCST) estimates the cost of plugging and abandoning these wells would be about \$9.1 billion.²⁸² In the case of California Resources Corporation, for example, its financial insolvency has raised concerns about its ability to pay for the proper plugging and abandonment of its 18,000 or so oil and gas wells, with likely cleanup costs north of \$1 billion.²⁸³

This downward trend has had and will continue to have adverse impacts on the County’s economy, and those impacts will only increase the more the County invests in the oil and gas industry. Jobs in the oil and gas sector in the County dropped by nearly 40 percent between 2014 and 2017 as the result of industry restructuring and efforts to cut operating costs.²⁸⁴ Both national and California studies have demonstrated that investing in a just transition to a clean energy economy will benefit workers and the economy.²⁸⁵ Thus, although oil and gas may support jobs in the short term, the County’s further commitment to a dying industry—at the cost of failing to develop a sustainable economy—is likely to have disastrous long-term economic consequences.²⁸⁶

Since the 2015 certification of the original EIR, the world has also come five years closer to catastrophic, irreversible climate change without meaningful action to curb greenhouse gas

²⁷⁹ *Id.* at p. 4.

²⁸⁰ IEEFA, *IEEFA U.S.: IEEFA Director of Finance Urges Oil Production Cuts at Texas Commission Hearing* (Apr. 15, 2020), <https://ieefa.org/ieefa-u-s-ieefa-director-of-finance-urges-oil-production-cuts-at-texas-commission-hearing/>; see also *The Future of the Oil Industry*, Economist (Apr. 18, 2020), https://www.economist.com/leaders/2020/04/18/the-future-of-the-oil-industry?itm_source=parsely-api (In 2019, “bankruptcies among American oil producers jumped by 50%. In 2020 that figure will soar.”).

²⁸¹ Cal. Council on Science & Technology (CCST), *Orphan Wells in California: An Initial Assessment of the State’s Potential Liabilities to Plug and Decommission Orphan Oil and Gas Wells* (Jan. 23, 2020) at p. ix., <https://ccst.us/wp-content/uploads/CCST-Orphan-Wells-in-California-An-Initial-Assessment.pdf>.

²⁸² *Id.* at p. x.

²⁸³ *California Resources Corp., Leading Oil and Gas Producer, Files for Chapter 11 Bankruptcy*, <https://www.desertsun.com/story/news/environment/2020/07/15/crc-californias-largest-oil-and-gas-company-files-bankruptcy-protection/5446329002/>.

²⁸⁴ Kelly Trout et al., Oil Change International, *The Sky’s Limit California*, at p. 28 (2018), http://priceofoil.org/content/uploads/2018/05/Skys_Limit_California_Oil_Production_R2.pdf.

²⁸⁵ See Heidi Garrett-Peltier, *Green versus brown: Comparing the employment impacts of energy efficiency, renewable energy, and fossil fuels using an input output model*, 61 Economic Modeling (2017); Frank Ackerman et al., Synapse Energy Economics, Inc., *Can Clean Energy Replace California Oil Production? Petroleum cutbacks and the California economy* (2018), <http://www.synapse-energy.com/sites/default/files/Can-Clean-Energy-Replace-California-Oil-18-012.pdf>.

²⁸⁶ Last Chance Alliance, *Phasing Out Fossil Fuels*, at pp. 20-21 (June 2019), <https://lastchancealliance.org/wp-content/uploads/2019/07/California-Oil-and-Gas-Policy-Brief-Last-Chance-Alliance.pdf>.

emissions (GHG) by amounts necessary to keep warming within 1.5 degrees Celsius. Temperatures in California have drastically increased. In fact, August 2020 was the hottest on record for the state, with Death Valley seeing the highest temperature on Earth in over a century when it reached 130 degrees Fahrenheit this summer.²⁸⁷ The trend will likely continue unless GHG emissions are significantly reduced in the near future. California's wildfires have also grown increasingly severe in the past few years, with the state currently experiencing several of the worst wildfires in its history fueled by the hotter temperatures and drier air caused by climate change.²⁸⁸ Wildfires, floods, heatwaves, vector-borne diseases, and species extinction caused and/or exacerbated by climate change have intensified the need to closely examine the context in which the Ordinance is being proposed.

Because the Draft SREIR does not address these issues, or attempt to assess and mitigate their environmental impacts, the County must update it analysis.

B. The Draft SREIR Fails To Consider and Incorporate Significant New Information on Harms from Oil and Gas Operations.

In addition, in the past five years, multiple studies have shown that oil and gas operations have greater impacts than the original EIR acknowledged. The Draft SREIR either minimizes or altogether ignores these significant harms.

1. The Draft SREIR Fails to Analyze the County's Experience Implementing the Ordinance and Its Mitigation Measures Since 2015.

Noting that the "Kern County Planning and Natural Resources Department has implemented the permit program established by the [Ordinance] for over four years as of March 26, 2020," section 4.18 of the Draft SREIR offers "clarifications for some of the mitigation measures." *Id.* At 4.18-1. According to the Draft SREIR, "[t]hese clarifications are informed by both the County's implementation experience to ensure applicant compliance and by the adopted process and online permit system, as well as materials prepared by the County to provide guidance and direction to the applicants on submitting applications and implementing mitigation measures." *Id.*

As the Draft SREIR recognizes, the County's years of practical experience implementing the Ordinance and the mitigation measures set forth in the 2015 Final EIR constitute significant new information that CEQA requires the County to disclose and analyze. The Draft SREIR, however, fails to provide or analyze any such information. The Draft SREIR indicates that certain mitigation measures identified in section 4.18 were amended based on "implementation experience" as well as certain "materials prepared by the County to provide guidance" (*id.* at 4.18-1), but nowhere does the Draft SREIR explain the experiences that have motivated it to

²⁸⁷ Smith, *A Sizzling Summer: Hottest August on Record in California*, Los Angeles Times (Sept. 10, 2020), <https://www.latimes.com/california/story/2020-09-10/a-sizzling-record-august-was-hottest-month-on-record-in-california>.

²⁸⁸ Mulkern, *Fast-Moving California Wildfires Boosted by Climate Change*, Scientific American (Aug. 24, 2020), <https://www.scientificamerican.com/article/fast-moving-california-wildfires-boosted-by-climate-change/>.

amend these measures, nor has the County appended its guidance materials. The Draft SREIR must be updated to address these deficiencies.

Further, it is not enough for the County merely to disclose its experience implementing the handful of measures it elected to discuss in section 4.18 of the Draft SREIR. The County must disclose (1) which mitigation measures have been applied to permits (2) how the County determined which measures should apply, (3) to what extent mitigation measures were effective in reducing impacts, (4) which measures failed to adequately reduce impacts of a project as expected, and (5) what steps the County has taken to ensure mitigation measures are being properly implemented by operators.

The foregoing information on mitigation implementation and effectiveness is particularly essential for Mitigation Measure 4.3-8, which has resulted in the collection of tens of millions of dollars in air quality mitigation fees, but failed to produce commensurate reductions in air pollution as promised.²⁸⁹

The County also must disclose its experience implementing Mitigation Measure 4.17-2 from the 2015 Final EIR, which the Draft SREIR proposes to eliminate. As set forth in the 2015 Final EIR, Mitigation Measure 4.17-2 required that: “By the end of 2016, the Applicants shall work with the County to review water use data submitted to Division of Oil Gas and Geothermal Resources under Senate Bill 1281 and identify the five biggest oil industry users of municipal and industrial water by volume. The five biggest oil industry users of municipal and industrial water shall work together to develop and implement a plan identifying new measures to reduce municipal and industrial water use by 2020.” *Id.* at Table 12-1 (029099). The County must disclose the progress made on and/or the results of this data collection and planning. The County must also disclose the outcome of the reporting and planning required under related Mitigation Measures 4.17-3 and 4.17-4. *Id.*²⁹⁰

2. The Draft SREIR Fails to Analyze New Studies Documenting the Serious Health Impacts of Oil and Gas Development.

The County fails to consider the plethora of studies that demonstrate that a 2,500-foot setback distance and other health and safety measures are necessary to protect sensitive receptors from the multiple health risks associated with proximity to oil and gas production activity. We discuss the studies that the County should incorporate in its analysis in sections VIII.A and VI.

The County also fails to and should consider a number of new studies documenting the link between poor air quality (in particular PM 2.5) and increased vulnerability to COVID-19.

The recent coronavirus pandemic has shed new light on the relationship between air pollution and health outcomes. A major study of air pollution and COVID-19 mortality in the United States found that exposure to even a small increase in fine particulate matter (PM_{2.5}) was linked to an 8 percent greater chance of dying from COVID-19.²⁹¹

²⁸⁹ See section IV, *supra*.

²⁹⁰ See section VII.A.2.ii, *supra*.

²⁹¹ Wu, Xiao et al. (2020).

A second study in Europe found that populations exposed to higher levels of nitrogen dioxide (NO₂) experienced higher rates of mortality during the coronavirus pandemic and concluded “long-term exposure to this pollutant may be one of the most important contributors to fatality caused by the COVID-19 virus in these regions and maybe across the whole world.”²⁹²

A study in England found that higher levels of ozone (O₃), nitrogen oxide (NO), and NO₂ are significantly associated with COVID-19 deaths.²⁹³ Similarly, a study in Italy concluded that air pollution should be considered an additional co-factor in the high level of COVID-19 mortality in Northern Italy, noting that people living in areas with high pollution levels are more likely to develop chronic respiratory conditions and are more vulnerable to infective agents.²⁹⁴

Two studies from China found that short term exposure to higher concentrations of air pollutants including PM_{2.5}, PM₁₀, CO, NO₂ and O₃ is associated with an increased risk of COVID-19 infection.²⁹⁵ Non-criteria hazardous pollutants also increase the mortality rates from COVID-19.²⁹⁶

3. The Draft SREIR is Inconsistent with California’s Climate Change Policies, and Ignores the Serious Public Health Impacts from Climate Change.

The Draft SREIR also fails to consider new information regarding the increasing threats from climate change. Many studies highlight the major role that fossil fuel production plays in bringing us closer to the serious consequences of climate change, including triggering more frequent and severe droughts, forest fires, floods, heatwaves, and other extreme weather.

The recent series of record-breaking heatwaves, wildfires, and poor air quality throughout the state has demonstrated clearly that the impacts of climate change are upon us and can no longer be ignored. Yet the Draft SREIR maintains that 20 years of continued oil development, including close to 70,000 new oil and gas wells, would have a “less than significant” impact. Draft SREIR at p. 4.18-36. Despite the severity of these climate-driven extreme weather events, the Draft SREIR fails to incorporate new information regarding the true extent of the impacts oil

²⁹² Ogen, Y., *Assessing Nitrogen Dioxide (NO₂) Levels As a Contributing Factor to Coronavirus (COVID-19) Fatality*, 720 Science of the Total Environment 138605 Adv. Online Pub. (July 15, 2020) (“Ogen 2020”), <https://doi.org/10.1016/j.scitotenv.2020.138605>.

²⁹³ Travaglio, M. et al., *Links Between Air Pollution and COVID-19 in England*, medRxiv (Apr. 28, 2020), <https://doi.org/10.1101/2020.04.16.20067405>.

²⁹⁴ Conticini, E. et al., *Can Atmospheric Pollution Be Considered a Co-factor in Extremely High Level of SARS-CoV-2 Lethality in Northern Italy?*, 261 Environmental Pollution 114465 (June 2020), <https://doi.org/10.1016/j.envpol.2020.114465>.

²⁹⁵ Tian, H. et al., *Risk of COVID-19 is Associated with Long-term Exposure to Air Pollution*, medRxiv (April 24, 2020), <https://doi.org/10.1101/2020.04.21.20073700>; Zhu, Y., *Association Between Short-Term Exposure to Air Pollution and COVID-19 Infection: Evidence from China*, 727 Science of the Total Environment (Apr. 2020) <https://doi.org/10.1016/j.scitotenv.2020.138704>.

²⁹⁶ Petroni, M., et al. *Hazardous Air Pollutant Exposure As a Contributing Factor to COVID-19 Mortality in the United States*, Environ. Res. Lett., Vol. 15, no. 9 (Sept. 11, 2020), <https://iopscience.iop.org/article/10.1088/1748-9326/abaf86>

and gas development have on GHG emissions and climate change. Dozens of cities and counties have sued the oil and gas industry over the damage caused by fossil fuel extraction and combustion, as well as the promotion of its harmful products despite knowing the contribution to climate change.

Continuing to permit thousands of new oil and gas wells per year for the next 20 years is inimical to state, national, and international efforts to prevent irreversible damage to the planet. Kern County, as California's largest oil and gas producing county, has a major responsibility to curb fossil fuel production and initiate a just transition toward safe, sustainable energy and a healthy economy.

Contrary to oil and gas industry claims, limiting California's production will not lead to equivalent increases in production elsewhere. Economists have debunked the "perfect substitution" theory that reducing oil production in California will result in an equal amount produced elsewhere, potentially causing even more GHG emissions. Coal mining proponents have made similar arguments, which have been ultimately dismissed by federal courts as "illogical,"²⁹⁷ "irrational,"²⁹⁸ and "contrary to basic supply and demand principles."²⁹⁹ In reality, reducing oil production in California will result in *global* reduction in oil production. For every barrel of oil kept in the ground in California, roughly one-half barrel of oil will remain in the ground globally.³⁰⁰ Moreover, the benefits are even greater when considering a corresponding decrease in fossil fuel demand in California.³⁰¹

An analysis by experts at Columbia University and the Rhodium Group on the effects of lifting U.S. crude oil export restrictions shows that national oil production affects global crude oil prices,³⁰² which is only possible without perfect substitution. As illustrated in Figure 23 of the study, when U.S. crude oil exports are permitted, as they were by the lifting of the crude oil export ban in December 2015, all modeling groups agreed that the international oil market will respond to changes in U.S. production.³⁰³ Specifically, all modeling groups projected that global crude prices would decrease as U.S. production increases, resulting in an increase in global crude oil demand: "a 1.2 million [barrels per day (b/d)] increase in US production due to removing current export restrictions could result in anywhere between a 0 and 1 million b/d increase in global crude demand."³⁰⁴ In short, this study demonstrates that crude oil operates in a global market, where increasing U.S. supply increases global demand and resulting GHG pollution.

²⁹⁷ *Mont. Environmental Law Center. v. U.S. Office of Surface Mining* (D.Mont. 2017) 274 F.Supp.3d 1074, 1098.

²⁹⁸ *WildEarth Guardians v. U.S. Bureau of Land Management* (10th Cir. 2017) 870 F.3d 1222, 1236.

²⁹⁹ *Ibid.*

³⁰⁰ Erickson, P. & Lazarus, M., *How Limiting Oil Production Could Help California Meet Its Climate Goals*, Stockholm Environment Institute (2018), <https://www.sei.org/wp-content/uploads/2018/03/sei-2018-db-california-oil2.pdf>.

³⁰¹ *Id.* at p. 8.

³⁰² Bordoff, J. & Houser, T., *Navigating the U.S. Oil Export Debate*, Columbia University Center on Global Energy Policy & the Rhodium Group (Jan. 2015), [https://energypolicy.columbia.edu/sites/default/files/Navigating%20the%20US%20Oil%20Export%20Debate January%202015.pdf](https://energypolicy.columbia.edu/sites/default/files/Navigating%20the%20US%20Oil%20Export%20Debate%20January%202015.pdf).

³⁰³ *Id.* at p. 42.

³⁰⁴ *Id.* at p. 57.

Researchers have also demonstrated a “production gap”—the difference between projected fossil fuel production and the reductions required to keep global average temperature changes within 1.5 degrees Celsius.³⁰⁵ The United States’ expected production far exceeds the limits of what the atmosphere can handle. And the country cannot continue to build new fossil fuel infrastructure and stay consistent with state or international climate targets.³⁰⁶ California—and the County as its largest oil and gas producer—can and must lead the way with substantial reductions in production in order to have a chance at preserving a livable planet.

The Draft SREIR further fails to consider that continued oil and gas development will only accelerate and worsen the effects of climate change on public health and well-being. The Fourth National Climate Assessment concluded that “[t]he health and well-being of Americans are already affected by climate change, with the adverse health consequences projected to worsen with additional climate change.”³⁰⁷ The health impacts from climate change include increased exposure to heat waves, floods, droughts, and other extreme weather events; increases in vector-, food- and waterborne infectious diseases; decreases in the quality and safety of air, food, and water including rising food insecurity and increases in air pollution; displacement; and stresses to mental health and well-being.³⁰⁸ Although everyone is vulnerable to health harms from climate change, populations experiencing greater health risks include children, older adults, low-income communities, communities of color, immigrant groups, and persons with disabilities and pre-existing medical conditions.³⁰⁹ The 2015 Lancet Commission on Health and Climate Change warned that climate change is causing a global medical emergency, concluding that “[t]he implications of climate change for a global population of 9 billion people threatens to undermine the last half century of gains in development and global health.”³¹⁰

³⁰⁵ See Stockholm Environment Inst. et al., *The Production Gap: The Discrepancy Between Countries’ Planned Fossil Fuel Production and Global Production Levels Consistent with Limiting Warming to 1.5°C or 2°C* (2019), <http://productiongap.org/wp-content/uploads/2019/11/Production-Gap-Report-2019.pdf>.

³⁰⁶ Tong, D. et al., *Committed Emissions from Existing Energy Infrastructure Jeopardize 1.5°C Climate Target*, *Nature*, 572(7769): 373–377 (2019), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6697221/pdf/nihms-1529140.pdf>.

³⁰⁷ U.S. Global Change Research Program, *Impacts, Fourth National Climate Assessment, Vol. II, Impacts, Risks, and Adaptation in the United States* (2018) p. 540, https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf (“USGCRP Vol. II 2018”).

³⁰⁸ *Id.* at pp. 540-41; U.S. Global Change Research Program, *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment* (2016), https://health2016.globalchange.gov/high/ClimateHealth2016_FullReport.pdf (“USGCRP 2016”); Melillo, J.M. et al. (eds.), *Climate Change Impacts in the United States: The Third National Climate Assessment*, U.S. Global Change Research Program (2014) p. 221, http://s3.amazonaws.com/nca2014/high/NCA3_Climate_Change_Impacts_in_the_United%20States_HighRes.pdf; Sheffield, P.E. & Landrigan, P.J., *Global Climate Change and Children’s Health: Threats and Strategies for Prevention*, 119 *Environmental Health Perspectives* (2011) p. 291, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3059989/pdf/ehp-119-291.pdf>.

³⁰⁹ USGCRP Vol. II 2018 at p. 548; USGCRP 2016; Sheffield & Landrigan (2011).

³¹⁰ Watts, N. et al., *Health and Climate Change: Policy Responses to Protect Public Health*, 386 *The Lancet* (2015) p. 1861, <https://www.thelancet.com/action/showPdf?pii=S0140-6736%2815%2960854-6>.

Climate change-driven health impacts are already occurring in the United States, particularly from illnesses and deaths caused by increasingly frequent and intense extreme weather events.³¹¹ Heat is the leading cause of weather-related deaths in the U.S., and extreme heat is projected to increase future mortality on the scale of thousands to tens of thousands of additional premature deaths per year across the U.S. by the end of this century.³¹² Hot days have been conclusively linked to an increase in heat-related deaths and illnesses—particularly among older adults, pregnant women, and children—including cardiovascular and respiratory complications, renal failure, electrolyte imbalance, kidney stones, negative impacts on fetal health, and preterm birth.³¹³

Air pollutants—particularly ozone, particulate matter, and allergens—are expected to increase with climate change as well.³¹⁴ Climate-driven increases in ozone will cause more premature deaths, hospital visits, lost school days, and acute respiratory symptoms.³¹⁵ In 2020, projected climate-related increases in ground-level ozone concentrations could lead to an average of 2.8 million more occurrences of acute respiratory symptoms, 944,000 more missed school days, and over 5,000 more hospitalizations for respiratory-related problems.³¹⁶ The continental U.S. could pay an average of \$5.4 billion (in 2008 dollars) in health costs associated with climate-related increases in ozone in 2020, with California experiencing the greatest impacts estimated at \$729 million.³¹⁷

Risks from infectious diseases are increasing as climate change alters the geographic and seasonal distribution of tick- and mosquito-borne diseases like Lyme disease and West Nile virus.³¹⁸ The risk of human exposure to Lyme disease—the most common vector-borne illness in the U.S.³¹⁹—is expected to increase as ticks carrying Lyme disease and other pathogens become active earlier in the season and expand northward in response to warming temperatures.³²⁰ The two species of ticks capable of spreading Lyme disease have already expanded to new regions of the U.S. partly because of rising temperatures: in 2015, they were found in more than 49 percent

³¹¹ USGCRP Vol. II 2018 at p. 541.

³¹² USGCRP 2016 at pp. 6-7.

³¹³ USGCRP Vol. II 2018 at pp. 544-45.

³¹⁴ U.S. Environmental Protection Agency, *Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act*, 74 Fed. Reg. 66496, 66497 (Dec. 15, 2009), https://www.epa.gov/sites/production/files/2016-08/documents/federal_register-epa-hq-oar-2009-0171-dec.15-09.pdf; USGCRP 2016 at p. 8.

³¹⁵ USGCRP 2016 at pp. 8-9.

³¹⁶ Union of Concerned Scientists, *Climate Change and Your Health: Rising Temperatures, Worsening Ozone Pollution* (2011) pp. 2-3, <https://www.ucsusa.org/sites/default/files/2019-09/climate-change-and-ozone-pollution.pdf>.

³¹⁷ *Ibid.*

³¹⁸ USGCRP 2016 at pp. 12-13.

³¹⁹ Schwartz, A.M. et al., *Surveillance for Lyme Disease — United States, 2008-2015*, Centers for Disease Control & Prevention: 66 MMWR Surveillance Summaries SS-22 (Nov. 10, 2017) p. 1, <https://www.cdc.gov/mmwr/volumes/66/ss/pdfs/ss6622-H.pdf>.

³²⁰ USGCRP 2016 at p. 13.

of counties in the continental U.S., a nearly 45 percent increase since 1998.³²¹ Rising temperatures and changes in rainfall have also contributed to the maintenance of West Nile virus in parts of the United States,³²² and annual cases of West Nile disease are projected to more than double by 2050 due in part to increasing temperatures, “resulting in approximately \$1 billion per year in hospitalization costs and premature deaths” under a higher emissions scenario.³²³

Numerous studies have emphasized that many lives could be saved with rapid reductions in GHG pollution.³²⁴ The Fourth National Climate Assessment concludes that “[r]educing greenhouse gas emissions would benefit the health of Americans in the near and long term.”³²⁵ The Assessment projects that “[b]y the end of this century, thousands of American lives could be saved and hundreds of billions of dollars in health-related economic benefits gained each year under a pathway of lower greenhouse gas emissions.”³²⁶ Another recent study reported that faster reductions in carbon pollution will prevent millions of premature deaths globally. Compared with a 2 degrees Celsius pathway, a 1.5 degrees Celsius pathway is projected to result in 153 million fewer premature deaths worldwide due to reduced PM_{2.5} and ozone exposure.³²⁷

The GHG and climate change deficiencies in the Draft SREIR’s analyses cannot be dismissed as harmless or insignificant, and require analysis and proper mitigation to comply with CEQA.

4. *The Draft SREIR Fails to Adequately Analyze Increased Harms to Wildlife from Oil and Gas Activity and Omits Impacts to New Species in the Project Area.*

The Draft SREIR also fails to consider new information regarding oil and gas

³²¹ Eisen, R.J. et al., *County-Scale Distribution of Ixodes Scapularis and Ixodes Pacificus (Acari: Ixodidae) in the Continental United States*, 53 *Journal of Medical Entomology* 2, 349 (Mar. 2016), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4844559/pdf/nihms759557.pdf>.

³²² Harrigan, R.J. et al., *A Continental Risk Assessment of West Nile Virus Under Climate Change*, 20 *Global Change Biology* 8, 2417(2014); Paz, S., *Climate Change Impacts on West Nile Virus Transmission in a Global Context*, *Phil. Trans. R. Soc. B* 370: 20130561 (2015), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4342965/pdf/rstb20130561.pdf>.

³²³ USGCRP Vol. II 2018 at p. 552.

³²⁴ Gasparrini, A. et al., *Projections of Temperature-Related Excess Mortality Under Climate Change Scenarios*, 1 *Lancet Planet Health*, e360 (2017), <https://www.sciencedirect.com/science/article/pii/S2542519617301560>; Hsiang, S. et al., *Estimating Economic Damage from Climate Change in the United States*, *Science*, 356, 1362-1369 (2017), <https://science.sciencemag.org/content/sci/356/6345/1362.full.pdf>; Silva, R.A. et al., *Future Global Mortality from Changes in Air Pollution Attributable to Climate Change*, 7 *Nature Climate Change*, 647-651 (2017), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6150471/pdf/nihms889681.pdf>; Burke, M. et al., *Higher Temperatures Increase Suicide Rates in the United States and Mexico*, 8 *Nature Climate Change*, 723-729 (2018), <https://www.nature.com/articles/s41558-018-0222-x>; Shindell, D. et al., *Quantified, Localized Health Benefits of Accelerated Carbon Dioxide Emissions Reductions*, 8 *Nature Climate Change*, 291-295 (2018), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5880221/pdf/nihms942953.pdf>.

³²⁵ USGCRP Vol. II 2018 at p. 541.

³²⁶ *Ibid.*

³²⁷ Shindell et al. (2018) at p. 4.

development impacts to biological resources. The County's 2015 EIR disclosed that the legless lizard, *Anniella*, was actually six distinct species. EIR at p. 4.4-89. At the time, "little [was] known about these new species." *Ibid.* The EIR mapped habitat for the silvery legless lizard (*annielle pulchra pulchra* (EIR, Appen. N, figure 4.4-28), but did not do the same evaluation for other legless lizard species. Specifically, the 2015 EIR did not fully evaluate the impacts to the Bakersfield legless lizard (*annielle grinnelli*) or the Temblor legless lizard (*Anniella alexanderiae*) because the EIR claimed habitat modeling was unavailable. Two other species of legless lizard that occur in the Central Valley, *annielle campi* and *annielle stebbinsi*, were not included in the 2015 EIR's analysis either.

A recent study adds new information about the species and provides modeling for the new species' habitats.³²⁸ Five of the six species of legless lizard can be found in Kern County, and the study shows that some differentiated legless lizard species have far more limited range in habitat. Two of the newly categorized species have "very restricted ranges" and are restricted to habitats that include loose soil or other substrate.³²⁹ In particular, *a. alexanderiae* may be at particular risk due to its limited habitat, and the fact that the vast majority of its habitat is privately owned land.³³⁰

The Draft SREIR must be updated to evaluate the Ordinance's potential harms to each species of legless lizard separately, as some species may be disproportionately harmed due to their habitats' proximity to projected oil and gas activity. The Draft SREIR should also consider feasible mitigation measures such as avoidance of legless lizard habitat.

In addition, saltbush scrub habitat has experienced "significant loss, degradation, and fragmentation associated with hydrocarbon production activities."³³¹ Only 25 percent of this habitat remains.³³² Where oil and gas activities move toward higher densities, one study found that invasive species become more prevalent.³³³ Native bird species such as Le Conte's thrasher were lower in number and cosmopolitan species were higher in number where oil and gas activity was more prevalent.³³⁴ Small mammals that specialize in saltbush habitat (antelope squirrels and short-nosed kangaroo rats) are not present in high-density oil fields.³³⁵ Conversely ground squirrels dominate high-density oil fields and may out-compete native antelope squirrels.³³⁶ The study concluded that native species are "profoundly impacted" by oil field

³²⁸ Parham, J.F. et al., *Conservation Assessment of the California Legless Lizard*, prepared for the Cal. Dept. of Fish & Wildlife (Aug. 16, 2019).

³²⁹ *Id.* at pp. 6-7.

³³⁰ *Id.* at p. 22.

³³¹ Fiehler, C.M. et al., *Effects of Oil and Gas Development on Vertebrate Community Composition in the Southern San Joaquin Valley, California*, *Global Ecology & Conservation* 9 (2017) 131-141 at p. 132, <https://www.researchgate.net/publication/312454535>
[Effects of oil and gas development on vertebrate community composition in the southern San Joaquin Valley California.](https://www.researchgate.net/publication/312454535)

³³² *Ibid.*

³³³ *Id.* at p. 138.

³³⁴ *Ibid.*

³³⁵ *Ibid.*

³³⁶ *Ibid.*

disturbance, particularly at higher levels of development.³³⁷ The Draft SREIR must update its analysis of biological resources impacts to include these new findings, in particular the relationship between native and non-native species as oil fields increase density.

Recent major oil and wastewater spills in the Project Area also cause significant impacts on wildlife. Several bird fatalities were confirmed as a result of a 1.3 million gallon “surface expression” in the Cymric 1Y area.³³⁸ Oil is routinely released at the surface in Kern County and, in 2020, the California Department of Fish and Wildlife acknowledged that it is common to see oil-covered wildlife in the region.³³⁹ The Draft SREIR nonetheless fails to analyze the impacts to wildlife using this newly available information.

More recent studies continue to expand our understanding of the increased harms to species due to oil and gas activity. For example, one study found that oil and gas activities in forested areas can alter avian communities and drive away populations.³⁴⁰ Another study finds that “edge effects” from oil and gas activities can have adverse impacts on species five kilometers away or more.³⁴¹ Wilson (2016) surveyed an array of studies documenting links between oil and gas activity and effects on species.³⁴² The survey found that harms originate from two general categories: (1) effects resulting from noise and/or activity associated with roads and industrial activities; or (2) effects on biotic and abiotic conditions that penetrate into surrounding intact ecosystems from edges associated with roads or industrial sites.³⁴³ Light pollution may also be a stressor.³⁴⁴ These stressors can lead to microclimate changes (light, wind, temperature, humidity changes), displacement, and behavioral adaptation, which in turn cause population change and habitat disturbance.³⁴⁵

Despite these serious impacts, several of the Draft SREIR’s changes to mitigation measures cede decision-making authority to a qualified biologist, who would control which mitigation measures to apply and how to apply them. The Draft SREIR’s scheme therefore eliminates any chance of public review or input as to the kinds of measures implemented to

³³⁷ *Id.* at p. 140.

³³⁸ Cal. Dept. of Fish & Wildlife, *Cymric Incident Update 10/11/19*, <https://calspillwatch.wordpress.com/tag/cymric-oil-field-incident/> (as of Sept. 13, 2020).

³³⁹ Thomas Cullen, Administrator, Office of Spill Prevention and Response, Department of Fish and Wildlife, speaking at the January 27 joint oversight hearing of the Senate Natural Resources and Water and Assembly Natural Resources Committees: *Oversight of the Cymric Oil Spill and California Oil & Gas Policy*, 2:13:28 to 2:16:10, <https://www.senate.ca.gov/media/joint-hearing-senate-natural-resources-water-assembly-natural-resources-20200127/video>.

³⁴⁰ Farwell, L.S. et al., *Shale Gas Development Effects on the Songbird Community in a Central Appalachian Forest*, *Biological Conservation* 201 (2016) 78-91, http://silvis.forest.wisc.edu/wp-content/uploads/2018/11/Farwell_et_al_2016.pdf.

³⁴¹ Wilson, S.F., *Managing Zone-of-Influence Effects of Oil and Gas Activities on Terrestrial Wildlife and Habitats in British Columbia*, *Journal of Ecosystems & Management* 16(1):1–14 (2016), <https://jem-online.org/index.php/jem/article/view/585/507>.

³⁴² See *id.* at pp. 5-7, Table 1.

³⁴³ *Id.* at p. 2.

³⁴⁴ *Ibid.*

³⁴⁵ *Id.* at p. 8.

protect species and removes the ability to hold decision-makers accountable for the impacts of decisions that harm the environment. This result is inimical to CEQA's foundational purpose as a right-to-know law informing the public of what decisions are being made, and the consequences of those decisions.

5. The Draft SREIR Fails to Address California's Orphan and Idle Well Crisis.

California's orphan and idle well crisis threatens devastating consequences for community health and safety.³⁴⁶ A new independent scientific study has found there are about 107,000 active and idle oil and gas wells in the state that will ultimately need to be carefully plugged and decommissioned.³⁴⁷ The study further confirmed thousands of deserted "orphan" wells and more than 17,000 long-term idle wells in the state.³⁴⁸ Recent reports have also confirmed that Kern County has a large number of idle wells that need to be properly plugged and abandoned. All of these wells pose risks to water, air, climate, and public health and safety by acting as potential conduits for pollutants while the well sits idle.

Indeed, the orphan and idle well crisis is a health and safety issue for 5.4 million California residents that live within one mile of at least one oil or gas well.³⁴⁹ For the nearly 4 million non-white individuals and families that live, work, and recreate in close proximity to oil and gas development activities, it is also an environmental justice issue.³⁵⁰ Allowing orphan and idle wells to remain unplugged exacerbates underlying health and environmental disparities experienced by frontline communities. California's oil and gas regulatory agency acknowledges that deserted and idle wells "present several hazards to the environment as well as public health and safety. Deteriorating wells can create a conduit for contaminants such as hydrocarbons, lead, salt, and sulfates to enter freshwater aquifers and pose potential risks to surface water, air quality, soils and vegetation."³⁵¹

³⁴⁶ An orphan well is "a well that has no party responsible for it, leaving the state to plug and abandon it. See Pub. Resources Code, § 3206.3(a)(1)(C); see also Pub. Resources Code, § 3250 *et seq.* Idle wells are "any well[s] that for a period of 24 consecutive months has not either produced oil or natural gas, produced water to be used in production stimulation, or been used for enhanced oil recovery, reservoir pressure management, or injection . . . and continues to be an idle well until it has been properly abandoned in accordance with Public Resources Code section 3208." Pub. Resources Code, § 3008(d).

³⁴⁷ CCST, *Orphan Wells in California* (2020) at p. ix.

³⁴⁸ *Ibid.*; Cal. Dept. of Conservation, Div. of Oil, Gas, & Geothermal Resources, *Idle Well Program Report on Idle & Long-Term Wells in California, Reporting Period: Jan. 1, 2018 to Dec. 31, 2018* (July 2019), https://www.conservation.ca.gov/calgem/idle_well/Pages/idle-well-program-report.aspx.

³⁴⁹ See Oil Change Internat., *The Sky's Limit California: Why the Paris Climate Goals Demand that California Lead in a Managed Decline of Oil Extraction* (2018) p. 21, http://priceofoil.org/content/uploads/2018/05/Skys_Limit_California_Oil_Production_R2.pdf; see also Nat. Assn. for the Advancement of Colored People (NAACP) & Clean Air Task Force, *Fumes Across the Fence-Line: The Health Impacts of Air Pollution from Oil & Gas Facilities on African American Communities* (2017), https://www.naacp.org/wp-content/uploads/2017/11/Fumes-Across-the-Fence-Line_NAACP-and-CATF-Study.pdf.

³⁵⁰ Natural Resources Defense Council (NRDC), *Drilling in California: Who's at Risk?* (2014) pp. 9-14, <https://www.nrdc.org/sites/default/files/california-fracking-risks-report.pdf>.

³⁵¹ Cal. Dept. of Conservation, *Idle Well Program Report* (2019).

Recent studies have identified unplugged wells as “super-emitting” sources of methane. In 2014, researchers identified unplugged gas wells in non-coal areas and plugged but vented gas wells in coal areas as the highest-emitters of methane in Pennsylvania.³⁵² A subsequent study revealed that methane emissions from unplugged oil and gas wells “represent[] as much as 10 percent of methane from human activities in [Pennsylvania]—about the same amount as caused by current oil and gas production.”³⁵³ According to the U.S. EPA, only a third of the nation’s 3.2 million abandoned wells are plugged.³⁵⁴ In 2018, abandoned oil wells emitted 227 kilotons of methane and 5 kilotons of carbon dioxide. That same year, abandoned gas wells emitted 54 kilotons and 2 kilotons of methane and carbon dioxide, respectively.³⁵⁵

Methane also contributes to ground-level ozone pollution, also known as smog.³⁵⁶ Smog pollution can cause a number of health effects, including: asthma, premature death, adverse birth outcomes, and various respiratory and cardiovascular diseases.³⁵⁷ Counties that are home to the state’s largest concentrations of oil and gas development—including Kern County—also top the list of most ozone polluted counties in the nation.³⁵⁸

Orphan and idle wells are also a source of water contamination. According to the U.S. EPA, “[u]nsealed, abandoned wells . . . constitute a hazard to public health, safety, and welfare, and to the preservation of ground water resources.”³⁵⁹ This is particularly true for older wells that have less robust mechanical designs; wells with casings that have deteriorated over time; or wells that were improperly plugged using, for example, rocks, buckets, tree stumps, and trash. In such

³⁵² Kang, M. et al, *Identification and Characterization of High Methane-Emitting Abandoned Oil and Gas Wells*, Proceedings of the National Academy of Sciences (2016) 113(48), <https://www.pnas.org/content/pnas/113/48/13636.full.pdf>.

³⁵³ Sullivan, J., Princeton University Office of Engineering, *Abandoned Wells Can Be ‘Super-Emitters’ of Greenhouse Gas* (Dec. 9, 2014), <https://www.princeton.edu/news/2014/12/09/abandoned-wells-can-be-super-emitters-greenhouse-gas>.

³⁵⁴ U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990 – 2018*, at 3-101 – 3-104, <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks> (as of Sept. 13, 2020).

³⁵⁵ *Id.*

³⁵⁶ Air & Waste Management Assn., *Air Pollution Issues Associated* (2012) fn. 3-4, <https://www.edf.org/sites/default/files/AWMA-EM-airPollutionFromOilAndGas.pdf>.

³⁵⁷ Am. Lung Assn., *State of the Air* (2019) pp. 36-38, <http://www.stateoftheair.org/assets/sota-2019-full.pdf>; U.S. Environmental Protection Agency, *Ozone Pollution and Your Patients’ Health*, <https://www.epa.gov/ozone-pollution-and-your-patients-health/what-ozone> (as of Sept. 13, 2020).

³⁵⁸ Am. Lung Assn., *State of the Air* (2019) at p. 24; see also NRDC, *Drilling in California: Who’s at Risk?* at pp. 9-14; FracTracker Alliance, *Impact of a 2,500’ Oil and Gas Well Setback in California* (July 2, 2019), <https://www.fractracker.org/2019/07/impact-of-a-2500-oil-and-gas-well-setback-in-california/>.

³⁵⁹ U.S. Environmental Protection Agency, *Impact of Abandoned Wells on Ground Water* (1977), <https://nepis.epa.gov/Exe/ZyPDF.cgi/2000I7IP.PDF?Dockkey=2000I7IP.PDF>.

cases, brine, methane, and other toxic pollutants may permeate from the well and contaminate underground sources of drinking water.³⁶⁰

Finally, orphan and high risk wells are at risk of damage from nearby oil and gas development activities. Damage to plugged or unplugged wells can trigger surface expressions—an uncontrolled release of oil and water from wells. For instance, in July 2019, a plugged but damaged well in Kern County spilled 91 barrels of oil and water into a nearby dry streambed over a two-month period.³⁶¹ These types of spills are a source of hazardous air emissions, environmental contamination, and depending on the size and location of the surface expression, could result in fatalities.³⁶²

Documented community experiences and recent scientific studies underscore the importance of decommissioning orphan and idle wells as quickly as possible. Yet properly closing and remediating all of California's current active and idle wells would cost \$9.2 billion.³⁶³ Despite the public health and safety risks and the large financial liability, the amount of financial resources that the industry has set aside for remediation is a fraction of what it would cost to properly plug and abandon these wells.

California's current bond requirements are notoriously ineffective at compelling operators to properly plug and abandon wells and decommission related facilities. The purpose of a bond is to ensure that polluters—not taxpayers—pay the cost of plugging wells and

³⁶⁰ Between 1983 and 2007, there were 41 incidents of freshwater aquifer contamination due to unplugged wells in Ohio. In Texas, 30 incidents of groundwater contamination from orphaned wells took place between 1993 to 2008. Amer. Geosciences Inst., *Petroleum and the Environment Part 7: Abandoned Wells* (2020) p. 7-1, https://www.americangeosciences.org/sites/default/files/AGI_PE_AbandonedWells_web_final.pdf (citing Ground Water Protection Council, *State Oil and Gas Agency Groundwater Investigations and Their Role in Advancing Regulatory Reforms* (2011), <http://www.gwpc.org/sites/default/files/State%20Oil%20%26%20Gas%20Agency%20Groundwater%20Investigations.pdf>); see also CCST, *An Independent Scientific Assessment of Well Stimulation in California Volume II: Potential Environmental Impacts of Hydraulic Fracturing and Acid Stimulation* (July 2015) pp. 133-35, <https://ccst.us/reports/an-independent-scientific-assessment-of-well-stimulation-in-california-volume-2/>; Moskowitz, P., *The Hidden Leaks of Pennsylvania's Abandoned Oil and Gas Wells*, *Guardian* (Sept. 18, 2014), <https://www.theguardian.com/environment/2014/sep/18/pennsylvania-abandoned-fracking-wells-methane-leaks-hidden>.

³⁶¹ Brekke & Goldberg, *Chevron Says Attempt to Seal Off Well May Have Triggered Big Kern County Oil Spill*, KQED (July 19, 2019), <https://www.kqed.org/news/11762422/chevron-says-attempt-to-seal-off-well-may-have-triggered-big-kern-county-oil-spill>; California Governor's Office of Emergency Services, *Hazardous Material Spill Update Control #: 201-1575 NRC#* (Mar. 19, 2020), [https://w3.calema.ca.gov/operational/mal haz.nsf/f1841a103c102734882563e200760c4a/38eb157ab071dd89882585310004e7cd?OpenDocument&Highlight=0%2c20-157](https://w3.calema.ca.gov/operational/mal haz.nsf/f1841a103c102734882563e200760c4a/38eb157ab071dd89882585310004e7cd?OpenDocument&Highlight=0%2c20-157;); see also Am. Geosciences Inst. (2020) at p. 7-1.

³⁶² See CCST, *An Independent Scientific Assessment of Well Stimulation in California* at p. 228; Cart, *What Happened to California Regulators' Vows to make Steam Injections Safer?*, *Los Angeles Times* (Nov. 28, 2015), <https://www.latimes.com/local/california/la-me-oil-steam-20151129-story.html>.

³⁶³ CCST, *Orphan Wells in California* (2020) at p. x.

decommissioning attendant facilities.³⁶⁴ Under California law, an operator must file a bond for each well—\$25,000 for a well that is less than 10,000 feet deep or \$40,000 for a well that is more than 10,000 feet deep—before “drilling, redrilling, or permanently altering a well.”³⁶⁵ Operators with more than twenty wells in the state have the option of posting a blanket indemnity bond “in lieu of an individual indemnity bond for each operation.”³⁶⁶

These current bond requirements do not deter operators from shirking their legal obligation to plug and abandon their wells.³⁶⁷ Earlier this year, CCST estimated that “5,540 wells in California are . . . likely orphan wells or [idle wells] at high risk of becoming orphan wells in the near future.”³⁶⁸ CCST classified another 69,425 wells as “economically marginal and idle wells . . . that could become orphan wells in the future as their production declines and/or as they are acquired by financially weak operators.”³⁶⁹

Operators desert their wells and forfeit their bonds because it is financially expedient to do so. This is because the bond requirements are substantially less than the actual cost of plugging wells. According to CCST, the average cost of plugging a well is \$68,000, which is \$28,000 to \$43,000 more than the bond required for an individual well.³⁷⁰ Further, the average cost varies significantly by well location; in the Southern district, the average cost is \$152,000.³⁷¹

Blanket bonds further minimize the actual cost of plugging and abandonment by “provid[ing] a . . . bulk discount for oil and gas operators drilling many wells.”³⁷² A California operator provides as little as \$200 to cover the cost of plugging up to 10,000 wells under a \$2 million blanket bond. That amounts to 340 times *less* than the average cost determined by CCST. The table below shows the bond amount per well based on the blanket bond criteria provided in Public Resources Code section 3205. That there is any scenario where an operator could pay less than \$4,000 to plug a well is an affront to communities that have to live with the daily consequences of nearby oil and gas extraction.

³⁶⁴ CCST, *Orphan Wells in California* (2020) at p. 32 (An operator must file a bond, “to cover . . . the eventual costs of plugging the well and/or environmental impacts caused by the well, in the event the operator at the time the well is terminated is unable or unwilling to do so.”).

³⁶⁵ Pub. Resources Code, § 3204(a).

³⁶⁶ *Id.*, § 3205(a).

³⁶⁷ See *id.*, § 3208.

³⁶⁸ CCST, *Report: Orphan Wells in California* (one-pager) p. 1, <https://ccst.us/wp-content/uploads/CCST-Orphan-Wells-in-California-One-Pager.pdf>.

³⁶⁹ *Ibid.*

³⁷⁰ CCST, *Orphan Wells in California* (2020) at p. 24.

³⁷¹ *Ibid.*, Table 7.

³⁷² Environment America, *Who Pays the Cost of Fracking? Weak Bonding Rules for Oil and Gas Drilling Leave the Public at Risk* (2013) p. 27, https://environmentamerica.org/sites/environment/files/reports/Who%20Pays%20the%20Cost%20of%20Fracking_vUS%20screen_0.pdf.

Financial assurance by well under California blanket bond requirements

Number of wells	Blanket bond amount	Bond amount per well
≤ 50	\$200,000	\$4,000
51 – 500	\$400,000	\$800 – \$7,843
501 – 10,000	\$2,000,000	\$300 – \$3,992
≥ 10,001	\$3,000,000	≤ \$299

Because operator bond requirements severely undervalue the actual cost of plugging and abandonment, the state is experiencing a shortfall in operator-provided bonds to address the California's 5,540 orphan and high-risk idle wells. California has an estimated \$26 million in available bond funds to address a \$554 million problem. A table illustrating this discrepancy is reproduced below:

Projected cost of plugging and abandoning orphan and idle wells³⁷³

Group	Wells	Cost (M)	Available Bonds (M)	Net Liability ¹⁹ (M)
Likely Orphan Wells	2,565	\$308	\$10	\$298
Wells at High Risk of Becoming Orphan Wells	2,975	\$246	\$16	\$230
Other Idle and Marginal Wells	69,425	\$5,287	\$53	\$5,234
Higher-Producing Wells	31,722	\$3,385	\$27	\$3,358
Total	106,687	\$9,226	\$107	\$9,120

As the largest oil-producing county, Kern County could see major fiscal impacts if companies attempt to walk away from their remediation responsibilities. Declining market conditions, price volatility, and ever-increasing debts within the oil and gas industry will inevitably fuel more well desertion and forfeiture. Indeed, California Resources Corporation's recent bankruptcy has raised concerns about its ability to meet its legal obligation to pay for the proper plugging and abandonment of its 18,000 oil and gas wells.³⁷⁴ Its likely cleanup costs are estimated at more than \$1 billion, with \$25 million already currently owed to Kern County.³⁷⁵ Industry bankruptcies are expected to increase in frequency and degree in the near future.³⁷⁶

³⁷³ CCST, *Orphan Wells in California* at p. 24, Table 8.

³⁷⁴ *California Resources Corp., Leading Oil and Gas Producer, Files for Chapter 11 Bankruptcy*, <https://www.desertsun.com/story/news/environment/2020/07/15/crc-californias-largest-oil-and-gas-company-files-bankruptcy-protection/5446329002/>.

³⁷⁵ *Ibid.*

³⁷⁶ *IEEFA U.S.: IEEFA Director of Finance Urges Oil Production Cuts at Texas Commission Hearing*, <https://ieefa.org/ieefa-u-s-ieefa-director-of-finance-urges-oil-production-cuts-at-texas-commission-hearing/>; see also *The Future of the Oil Industry*, https://www.economist.com/leaders/2020/04/18/the-future-of-the-oil-industry?itm_source=parsely-api (In 2019, "bankruptcies among American oil producers jumped by 50%. In 2020 that figure will soar.").

The County's decision to add tens of thousands of new wells will only increase the potential financial liability to taxpayers if oil companies continue to drill new wells without setting aside enough money to pay for proper plugging and abandonment. The Draft SREIR must instead adequately analyze the extent of the state's orphan and idle well crisis, and mitigate the industry's instinct to shift its environmental liabilities onto the state's taxpayers and burdened communities. In addition, the County cannot continue to issue new permits without first supplementing the State's existing bonding requirements to ensure that adequate financial assurances are provided upfront.

Given the new information about the inadequacy of bonding requirements, low oil prices, and the financial instability of oil and gas companies, the Draft SREIR should consider requirements for permit applicants to submit "life-of-well" bonds that cover the actual expected costs of well plugging and removal. Blanket bonds should be prohibited. Requiring adequate financial resources to be set aside will protect air, water, and public health and safety by ensuring that companies cannot dissolve without meeting their legal obligation to pay for well remediation. The Draft SREIR should also consider an alternative or mitigation measure under which the County requires idle well plugging within a certain number of years. North Dakota requires plugging of a well that has been idle for one year.³⁷⁷ A similar measure in Kern County would help address the serious dangers posed by idle wells. Finally, the County must regularly and consistently ensure permit applicants' compliance with state regulations for idle wells, rather than ensuring compliance only if applicants are subject to complaints under Public Resources Code section 3235 (Draft SREIR, Vol. 1, Ch. 3, Attachment A, p. 23).

6. *The Draft SREIR Fails to Analyze the Numerous Recent Spills That Have Contaminated Soil in Kern County.*

In the five years since the original EIR's adoption, Kern County has experienced multiple events resulting in massive soil contamination. Yet the Draft SREIR does not include updated information or analysis about these events, or the large-scale spills occurring in Kern County in 2019-2020. The Cymric 1Y spill, for example, resulted in large quantities of soil being contaminated; remediation crews ultimately hauled the soil to hazardous waste facilities due to the serious contamination from oil and wastewater.³⁷⁸ Wastewater pits have also contaminated soils. The County's Mitigation Measure 4.8-8 requires compliance with regional water board regulations, but these regulations allow disposal into unlined pits, which are known to lead to widespread soil contamination. The Draft SREIR must fully analyze and evaluate these impacts in order to comply with CEQA.

7. *The Draft SREIR Fails to Consider Impacts to Surface and Groundwater Resources.*

Oil and gas activities pose a serious risk to public health and safety because the chemicals involved in the production process can contaminate nearby groundwater and surface water. In

³⁷⁷ North Dakota Administrative Code, § 43-02-03-55.

³⁷⁸ Goldberg, *State Says It Has No Idea How Long It Will Take to Clean Up Chevron's Kern County Oil Spill*, KQED (Aug. 23, 2019), <https://www.kqed.org/news/11769242/chevron-kern-county-cymric-mckittrick-oil-spill-clean-up>.

addition to the chemicals employed by oil and gas companies, the oil and gas itself is unsafe and can pollute water resources if fluids are allowed to migrate through underground pathways opened by the extraction process.

In California, a study of Kern County produced water found high concentrations of benzene, a known carcinogen. In some samples, benzene concentrations were as high as 18.0 mg/L, thousands of times above safe levels for drinking water.³⁷⁹ Since the 2015 EIR, even more studies have shown that the risk of groundwater contamination is high.

In a December 2016 report from the U.S. EPA, the following factors were found to potentially impact water quality: (1) Water withdrawals for enhanced oil recovery or fracking in times or areas of low water availability; (2) Spills during the management of produced water, fracking fluids, or chemicals; (3) Injection of enhanced oil recovery or fracking fluids into wells with inadequate mechanical integrity; (4) Injection of fluids directly into groundwater resources; (5) Discharge of inadequately treated wastewater to surface water resources; and (6) Disposal or storage of wastewater in unlined pits.³⁸⁰ The compilation of this list was based on studies that found impacts to wastewater from the listed activities.³⁸¹

A California study reported that produced water from 95 percent of 630 fracked wells contained measurable, and sometimes elevated, concentrations of toxic BTEX (benzene, toluene, ethylbenzene and xylene) and PAH (polycyclic aromatic hydrocarbon) compounds.³⁸² Many toxic chemicals used in oil and gas extraction are water soluble and thus pose a direct threat to water quality. For example, hydrochloric acid is used to initiate rock fractures, ethylene glycol is used to prevent scale deposits in pipes, and glutaraldehyde is used to eliminate bacteria from produced water.³⁸³ There are also chemicals that are directly associated with fossil fuels and produced water, such as the BTEX chemicals, that can contaminate water resources.

Furthermore, even of the chemicals that are reported, key information is often missing that would be necessary to evaluate their toxicity and potential health and environmental impacts. Of 316 chemicals used in hydraulic fracturing and acid treatments reported by oil and gas production operators in California, 40 percent lacked environmental impact or toxicity

³⁷⁹ Cal. Dept. of Conservation, Div. of Oil, Gas, & Geothermal Resources, *Benzene in Water Produced from Kern County Oil Fields Containing Fresh Water* (1993) pp. 3-4, https://www.biologicaldiversity.org/programs/public_lands/energy/dirty_energy_development/oil_and_gas/pdfs/1993_DOGGR_study_of_produced_water.pdf.

³⁸⁰ U.S. Environmental Protection Agency, *Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States* (2016) p. ES-3, <https://bit.ly/2FfnfS> (“EPA 2016 HF Study”).

³⁸¹ *Ibid.*

³⁸² Chittick, E.A. & Srebotnjak, T., *An Analysis of Chemicals and Other Constituents Found in Produced Water from Hydraulically Fractured Wells in California and the Challenges for Wastewater Management*, 204 *Journal of Environmental Management*, 502 (2017), <https://www.sciencedirect.com/science/article/pii/S0301479717308630?via%3Dihub>.

³⁸³ CCST, *Advanced Well Stimulation Technologies in California* (July 2016) p. 381, <https://ccst.us/wp-content/uploads/160708-blm-report.pdf>.

data.³⁸⁴ Of that, 38 percent also lacked a Chemical Abstracts Service Registry Number (CASRN), which serves as a unique numerical identifier of chemical substances.³⁸⁵ Only 55 percent of the reported chemicals had a CASRN, impact or toxicity data, and quantity of use or amount of emissions, all of which are necessary in assessing the chemical burden imposed by a given substance.³⁸⁶

These chemicals can be mobilized in a number of ways, one of which is spills. Several studies have noted spills of fracking fluids or additives, most of which were caused by equipment failure or human error. For instance, an EPA analysis characterized 151 spills of fracking fluids or additives on or near well sites in 11 states between January 2006 and April 2012.³⁸⁷ Of the total, 34 percent of the spills were due to equipment failure, 25 percent were due to human error, and more than 30 percent of the spills were from fluid storage units.³⁸⁸ In addition, of the 151 spills analyzed by the EPA, the spill amount ranged from 5 gallons up to 19,320 gallons.³⁸⁹ Thirteen of the 151 spills reached a surface water body, with the largest spill volume reported reaching a water body being 7,350 gallons.³⁹⁰

Another way in which chemicals can be mobilized is through unintended flow pathways in the subsurface resulting from fluid injection for oil and gas production or disposal. A well with insufficient mechanical integrity (e.g. due to well casing and tubing leaks, uncemented annulus, gaps in cement, gaps between casing and cement) can allow unintended fluid movement.³⁹¹ Also, the fracture network produced during injection could intersect sources of groundwater or surface water constituting a conduit for polluted water to flow.³⁹² Finally, there have been instances where injection into one well has affected a nearby oil and gas well, resulting in spills of the nearby well.³⁹³

In Santa Barbara, the U.S. Geological Survey (USGS) conducted a survey of the Orcutt oil field as part of the Regional Monitoring Program authorized by Senate Bill 4.³⁹⁴ USGS compiled historical information about the study area and collected groundwater samples from seven domestic, six irrigation, and three monitoring wells of varying depths and compared these samples to produced water samples collected from five oil wells and one injection site.³⁹⁵

³⁸⁴ CCST, *An Independent Scientific Assessment of Well Stimulation in California* at p. 17.

³⁸⁵ *Ibid.*

³⁸⁶ *Ibid.*

³⁸⁷ EPA 2016 HF Study at p. ES-22.

³⁸⁸ *Ibid.*

³⁸⁹ *Ibid.*

³⁹⁰ *Id.* at p. ES-23.

³⁹¹ *Id.* at p. ES-29.

³⁹² *Id.* at p. ES-30.

³⁹³ *Id.* at p. ES-32.

³⁹⁴ Anders, R. et al., *Abstract: Groundwater quality results from the Regional Monitoring Program Study of the Orcutt Oil Field*, presented at California State Water Resources Control Board Stakeholder Meeting (Feb. 25, 2019) Sacramento, California, USGS (2019), <https://webapps.usgs.gov/cogg/products/groundwater-quality-results-from-the-regional-monitoring-program-study-of-the-orcutt-oil-field>.

³⁹⁵ *Ibid.*

Preliminary results show evidence of mixing between oil field fluids and groundwater in four of the 16 wells sampled.³⁹⁶ Similar evidence of contamination has since been found in the Fruitvale, Lost Hills, and South Belridge oil fields in Kern County.³⁹⁷

Finally, in California, unlined disposal pits for drilling and fracking waste are documented sources of contamination.³⁹⁸ California is one of only a handful of states that allow oil operators to dump wastewater from oil and gas production into dangerous, open, unlined pits.³⁹⁹ In at least one case, contaminants polluted multiple sources of groundwater and migrated from the disposal site to wells that are miles away.⁴⁰⁰ The wastewater discharge at that facility continues to this day.

The Draft SREIR should therefore consider an alternative or mitigation measure under which wastewater disposal pits are prohibited. The County must also consider and incorporate the following recent collaborative studies between the State Water Resources Control Board and USGS. Taken together, these new studies further demonstrate that oil and gas activities have caused significant contamination of the state's groundwater supplies.

- McMahon, P.B. et al. (2017)

This study analyzed the groundwater samples taken from USGS monitoring wells overlying or near oil fields in the Los Angeles Basin. The study found that groundwater samples showed high concentrations of total dissolved solids, contained oil field formation gas (e.g. methane, propane, butane), and adopted the isotopic signature of produced water. Taken together, these results indicate that the groundwater samples had significantly mixed with the oil field formation water.

³⁹⁶ *Ibid.*

³⁹⁷ McMahon, P.B. et al., *Occurrence and Sources of Radium in Groundwater Associated with Oil Fields in the Southern San Joaquin Valley, California*, 53 Environ. Sci. Technol. 9398-9406 (2019), <https://pubs.acs.org/doi/pdf/10.1021/acs.est.9b02395>; McMahon, P.B. et al., *Preliminary Results from Exploratory Sampling of Wells for the California Oil, Gas, and Groundwater Program, 2014-2015*, USGS (2017), <https://pubs.usgs.gov/of/2016/1100/ofr20161100.pdf>; Gillespie, J.M. et al., *Groundwater Salinity and the Effects of Produced Water Disposal in the Lost Hills—Belridge Oil Fields, Kern County, California*, 26 Environ. Geosciences 3, 73-96 (2019), <https://pubs.geoscienceworld.org/eg/article/26/3/73/573555/Groundwater-salinity-and-the-effects-of-produced>.

³⁹⁸ CCST, *An Independent Scientific Assessment of Well Stimulation in California, Chapter 2: Impacts of Well Stimulation on Water Resources* at pp. 110-13.

³⁹⁹ Cal. Regional Water Quality Control Bd., Central Valley Region, *Order R5-2017-0036* (Apr. 6, 2017), https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2017-0036.pdf; Ziogiannis, N. et al., *State Regulation of Unconventional Gas Development in the U.S.: An Empirical Evaluation*, 11 Energy Research & Social Science 142 (2016) at Table A.3, <https://www.sciencedirect.com/science/article/abs/pii/S221462961530061X?via%3Dihub>.

⁴⁰⁰ Central Valley Regional Water Control Bd., *Staff Report, Valley Water Management Company, McKittrick 1 & I-3 Facility, Kern County* (Feb. 25, 2019), https://www.waterboards.ca.gov/centralvalley/board_decisions/tentative_orders/1804/13_valley_watermgmt/02_vwm_mckittrick113_stfrpt.pdf.

- McMahon, P.B. et al. (2019)

Similar to the McMahon 2017 study, the McMahon 2019 study showed that 18 percent of water samples taken from wells in or near oil fields were contaminated by radioactive material (i.e. radium) at levels beyond the maximum contaminant level, thereby making the water unsuitable for human consumption. Groundwater contamination by radium was also traced to unlined wastewater disposal pits.

- Wright, M.T. et al. (2019)

In this study, samples were collected from 14 groundwater wells. Methane was detected in 11 of the 14 groundwater samples, which could be attributed to a leaky wellbore.⁴⁰¹ Two of the samples had an isotopic signature similar to that of an oil and gas reservoir source, highlighting a connection between oil-bearing formations and the overlying groundwater aquifer. All of the samples collected had at least one volatile organic compound (VOC) detection and three of the samples contained petroleum hydrocarbons, particularly benzene.

- Gillespie, J.M. et al. (2019)

This study documents the influence of wastewater disposal pits and produced water injection disposal wells on groundwater reservoirs. The results found that oil and gas wastewater migrated approximately 1,525 and 550 meters from wastewater disposal pits and injection disposal wells, respectively.

8. The Draft SREIR Ignores the Dangerous Spills, Explosions, and Accidents Increasingly Common to Oil and Gas Operations.

Since the 2015 EIR, new and troubling information about the dangers of steam injection operations has emerged. In 2019, increasingly large and frequent “surface expressions” have pushed up oil and produced water to the surface and caused large-volume spills. Multiple incidents in Kern County have spilled over a million gallons of oil and wastewater at the surface. Alarming, one spill has been activating on and off for about 17 years, cumulatively releasing 84 million gallons of oil and waste fluid, according to a Chevron spokesperson.⁴⁰² In 2019, 13 spills were reported in the Cymric oil field alone.⁴⁰³ These events are all attributable to steam injection. Of particular concern, the frequency of reported large spills increased since state regulations changed in April 2019 to allow higher pressure steam injection to occur. The Draft SREIR ignores all of this information. The County must update its analysis in light of these

⁴⁰¹ Wright, M.T. et al., *Groundwater Quality of a Public Supply Aquifer in Proximity to Oil Development, Fruitvale Oil Field, Bakersfield, California*, Applied Geochemistry (2019).

⁴⁰² Goldberg & Brekke, *State Launches Probe Into Oil Field Spills – Including One That's Been Flowing Since 2003*, KQED (Aug. 26, 2019) <https://www.kqed.org/news/11769850/state-launches-probe-into-oil-field-spills-including-one-that-started-in-2003>.

⁴⁰³ Cal. Dept. of Conservation, *Oil Field Surface Expressions*, <https://www.conservation.ca.gov/calgem/Pages/Chevron-Cymric-oil-spill.aspx> (as of Sept. 13, 2020).

incidents as well as the change in the legality of steam injection above the fracture pressure, which changes the types of activities that are permitted under the Ordinance. The County must also disclose, analyze, and mitigate the air quality impacts from these surface expressions and other spills.

Other recent accidents further demonstrate that these incidents are frequent and unavoidable—and should therefore be carefully considered and evaluated in the Draft SREIR. In 2015, the Plains All American pipeline Line, which runs along the Gaviota Coast in southern Santa Barbara County, ruptured and spilled about 142,000 gallons of crude oil onto the shoreline and into the ocean.⁴⁰⁴ This year, a truck carrying crude oil overturned and spilled 6,000 gallons of oil into the Cuyama River, which flows into the Twitchell Dam and reservoir.⁴⁰⁵

The Draft SREIR's analysis does not reflect the added risks from explosions and similar hazards. Haley et al. (2016) considered the minimum setback distance that would be safe in the event of a blow-out or explosion event at an oil or gas facility. The researchers found that the average evacuation zone for such an event is 0.8 miles, or 4,224 feet, based on historical evacuation data.⁴⁰⁶ Setbacks to guard against such hazards are important to consider since accidents have resulted from inadequate setback distances. For instance, on April 17, 2017, a one-inch abandoned pipeline exploded under a home in Firestone, Colorado, killing two people and badly burning a third.⁴⁰⁷ The gas well head was located just 178 feet from the home.⁴⁰⁸ A proper setback in place could have prevented this tragedy. Even older, deserted wells that have not been active for years can cause blowouts or even explosions, such as the violent eruption at a construction site in Marina del Rey in January 2019.⁴⁰⁹ The Draft SREIR must update its analysis to fully disclose the risk of spills and accidents that are foreseeable under this Ordinance.

⁴⁰⁴ Magnoli, *Plains All American Pipeline Faces 46 Criminal Charges in Refugio Oil Spill*, Noozhawk (May 17, 2016), https://www.noozhawk.com/article/plains_faces_criminal_charges_in_santa_barbara_countys_refugio_oil_spill.

⁴⁰⁵ Associated Press, *Overturned Tanker Spills 6K Gallons of Oil Near California Dam*, Mercury News (Mar. 21, 2020), <https://www.mercurynews.com/2020/03/21/overturned-tanker-spills-6k-gallons-oil-near-california-dam/>.

⁴⁰⁶ Haley, M. et al., *Adequacy of Current State Setbacks for Directional High-Volume Hydraulic Fracturing in the Marcellus, Barnett, and Niobrara Shale Plays*, Environ. Health Perspect. 124:1323–1333 (2016) p. 1328, <https://ehp.niehs.nih.gov/doi/pdf/10.1289/ehp.1510547>.

⁴⁰⁷ Kelly, *Deadly House Explosion in Colorado Traced to Uncapped Pipe from Gas Well*, Los Angeles Times (May 2, 2017), <http://www.latimes.com/nation/nationnow/la-na-colorado-explosion-20170502-story.html>.

⁴⁰⁸ *Ibid.*

⁴⁰⁹ Olalde & Menezes, *Deserted Oil Wells Haunt Los Angeles with Toxic Fumes and Enormous Cleanup Costs*, Center for Public Integrity & Los Angeles Times (Mar. 5, 2020), <https://publicintegrity.org/environment/wells-run-dry/deserted-oil-wells-haunt-los-angeles-with-toxic-fumes-and-enormous-cleanup-costs/>; Johnson, *Well Near Berthoud Starts Spilling Drilling Mud 33 Years After It Was Capped*, Denver Post (Oct. 31, 2017), <https://www.denverpost.com/2017/10/31/well-near-berthoud-starts-spilling-drilling-mud-33-years-after-capped/> (300 barrels of drilling mud spilled).

Despite these significant data gaps and uncertainties, the Draft SREIR fails to conduct proper CEQA analysis of any of these issues or address how the Ordinance is worsening these problems.

X. Conclusion

For the reasons set forth above, we urge the County to extend the comment period, to institute the above-described measures to allow Spanish-speaking residents to participate meaningfully in the public process, and, ultimately, to reject the Ordinance.

We reserve the right to identify new issues, provide additional information, and propose additional mitigation measures during the County's ongoing decision making process for the Ordinance.

Sincerely,

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Addendum A

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September 16, 2020

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Re: Review of Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020(A), Focused on Oil and Gas Local Permitting, SCH# 2013081079

Dear Mr. O'Brien,

Per your request, I reviewed the Draft Supplemental Recirculated Environmental Impact Report ("Draft SREIR") for Revisions to the Kern County Zoning Ordinance – 2020(A) on Oil and Gas Local Permitting ("Project") published by the Kern County Planning and Natural Resources Department ("County") as the lead agency under the California Environmental Quality Act ("CEQA").¹

The proposed Project would amend the Kern County Zoning Ordinance (Title 19), focusing on Chapter 19.98 (Oil & Gas Production), relating to the future development of oil and gas resources in Kern County. These proposed amendments would allow the County to issue permits for up to 3,647 oil and gas wells per year for a period of 21 years without any further CEQA review.

As requested, my review focuses on the Draft SREIR's air quality section (Section 4.3). I previously commented on the Final Environmental Impact Report for the Project published by the County in 2015 ("2015 Final EIR").²

¹ Kern County Planning and Community Development Department, Final Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C), Focused on Oil and Gas Local Permitting, August 2020, SCH# 2013081079; available at: <https://kernplanning.com/environmental-doc/oil-and-gas-sreir/>.

² Petra Pless, Letter to Will Rostov, Earthjustice, Re: Review of Final Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C), Focused on Oil and Gas Local Permitting,

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I. The Draft SREIR's Air Quality Section Is Not Adequately Supported

The Draft SREIR consists of the main text (11 chapters) and four appendices as well as previously circulated environmental impact reports and associated appendices for the Project. These documents are organized into eight volumes, as listed in the Table of Contents, pp. i-v, and summarized below.

Draft SREIR	Contents	Number of Pages
Vol. 1	2020 Draft SREIR	1,711
Vol. 2	2020 Draft SREIR, Appendices	537
Vol. 3	2015 Draft EIR, Chapters 1 through 11	1,877
Vol. 4	2015 Draft EIR, Appendices	5,625
Vol. 5	2015 Final EIR, Chapter 7 – Response to Comments	3,755
Vol. 6	2015 Final EIR, Chapter 7 – Response to Comments, Appendices	16,764
Vol. 7	2015 Final EIR, Chapter 12 – Consolidated Final EIR	5,511
Vol. 8	2018 Final Supplemental EIR, 2018 Draft Supplemental EIR	984

Given this voluminous record (36,764 pages), review of the revised sections presented in the Draft SREIR could have been greatly facilitated if the document had provided a redline-strikeout version of the revisions made to the 2015 Final EIR upon which it is based;³ unfortunately such a redline strike-out version was not provided (with the exception of revisions to mitigation measures) and the reviewer is thus left to painstakingly compare and review the above documents to locate any revisions and appropriate supporting documents. For the section on air quality, this task is not made any easier by the Draft SREIR's highly repetitive and poorly organized and written content. Critically, despite the voluminous record, the Draft SREIR fails to provide adequate support for the air quality section, as discussed below.

³ See Draft SREIR, p. 1-2. ("The SREIR will be used by the County to determine whether to approve the proposed amendment to Chapter 19.98 and related chapters of the Kern County Zoning Ordinance. It is based on the information contained in the 2015 FEIR, which is provided as Volume 3 of this SREIR.")

I.A Adequacy of Supporting Documents for Draft SREIR, Section 4.3, Air Quality

The revisions in the Draft SREIR, Vol. 1, Section 4.3, Air Quality include:

1) a description of the affected environment and regulatory setting for air quality in relation to the attainment status of the San Joaquin Valley Air Basin in terms of attainment and attainment plans for particulate matter less than 2.5 microns (“PM2.5”); 2) clarification of the enforceability and impact of mitigation measure MM 4.3-8 on PM2.5 emissions; 3) recirculation and discussion of the multi-well Health Risk Assessment (also called the Cumulative Health Risk Assessment); and 4) a discussion of COVID-19.⁴

The revised air quality section in the Draft SREIR, Volume 1, Section 4.3, is 143 pages long (including 46 tables) and, according to the text of the air quality section, is supported by several appendices found in Volumes 2 and 4 of the Draft SREIR:

- Volume 2 (appendices to Draft SREIR):
 - Appendix B – Health Risk Assessments (including *Cumulative Health Risk Assessment* and *Revised Health Risk Assessment*)
 - Appendix C - Oil and Gas Emission Reduction Agreement (20160168), KC Agreement # 890-2016
- Volume 4 (appendices to 2015 Draft EIR⁵):
 - Appendix E – Update and Report on Joint ARB/CAPCOA AB 8 Carl Moyer Program Evaluation
 - Appendix I – Emissions Tables
 - Appendix K – List of Equipment
 - Appendix L – San Joaquin Valley Air Pollution Control District Documents

In addition, the Draft SREIR’s air quality section refers to a 2015 air quality technical report prepared by Vector Environmental, Inc.⁶ (“2015 Vector Report”):

⁴ Draft SREIR, p. 4.3-1.

⁵ The Draft SREIR, pp. 4.3-79, 4.3-111, and 4.3-118, refers to appendices to the 2015 Final EIR.

⁶ Draft SREIR, for example: Note to Table 4.3-6 (“Source: Vector Environmental 2015”), p. 4.3-79 (“Source data and emissions associated with the Project were determined based on the Air Quality Technical Report prepared by Vector Environmental, Inc. (Vector).”), Note (b) to Table 4.3-33 (“From Vector Environmental, Inc. (Vector) Spreadsheet titled “DRL_EMISSIONS.xlsx”, worksheet “EMF”.”), Note (d)

Despite this at first glance seemingly detailed and comprehensive information, the presentation in the Draft SREIR's air quality section is riddled with omissions and errors and is entirely unsupported, as discussed below. Consequently, the Draft SREIR's conclusions regarding the significance of impacts on air quality are not supported.

I.A.1 2015 Vector Report

The Draft SREIR states that source data and emissions associated with the Project were determined based on the 2015 Vector Report and provides citations to the report throughout the air quality section.⁷ As of September 16, 2020, this report was not made available for public review as part of the record posted on the County's website. This report is indispensable for review because it lays out the methodology, assumptions, and sources for the emission estimates presented in the Draft SREIR. Without access to this report, the emission estimates and, thus, the Draft SREIR, are not supported by substantial evidence.

Despite multiple requests to provide the 2015 Vector Report and accompanying spreadsheets, the County refused to provide this document and include it in the record, instead claiming that the report a) need not be provided and b) was never finalized. Specifically, Draft SREIR, Vol. 5 (2015 Final EIR Response to Comments), Response to Comment 0047-38 provides:

Please see GR Air-2 regarding the Emission Reduction Agreement. Please also see GR-16. The commenter notes that the data prepared by Vector Environmental, Inc. was not included in the DEIR. The report to which the commenter refers was a draft report created as part of the air quality analysis, but was never completed. All of the supporting information used in both the incomplete Vector report draft and in drafting the DEIR was available to the public upon request to the County. Some parties obtained the supporting information via a California Public Records Act request. It is evident from the comment that the commenter received the supporting information for review. The DEIR was not required to include this material. To keep the EIR to a manageable length, source documents used in preparing an EIR need not be included in the EIR. See CEQA Guidelines § 15148. Scientific, engineering, and technical reports and similar documents relied on in preparing an EIR need not be incorporated into the body of the EIR or in an EIR appendix. *Id.*; see also *Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection* (2008) 43 Cal. 4th 936, 958 (nothing in CEQA requires that source materials be physically incorporated in an EIR); *Mount Shasta Bioregional Ecology Ctr. v. County of Siskiyou* (2012) 210 Cal. App. 4th 184, 219 (an EIR may summarize information in a technical report without appending the report or incorporating the report by reference); *Anderson First Coalition v. City of Anderson* (2005) 130 Cal. App. 4th 1173 (the EIR's hydrological analysis was not incomplete when a study relied on in determining the drainage report was not included in the EIR).

to Table 4.3-33 ("From Vector spreadsheet titled "DRL_EMISSIONS.xlsx", worksheet "MUD".), Note (a) to Table 4.3-38 ("(a) PM10 emissions were from Vector Environmental, Inc. (February 2015).").

⁷ Draft SREIR, p. 4.3-79 ("Source data and emissions associated with the Project were determined based on the Air Quality Technical Report prepared by Vector Environmental, Inc. (Vector).").

In addition, the Draft SREIR, Vol. 5 (2015 Final EIR, Response to Comments), Response to Comment 0048-62 provides:

The commenter states that the absence of the "Vector report" invalidates the air quality analysis. The report to which the commenter refers was a draft report created as part of the air quality analysis, but was never completed. All of the supporting information used in both the incomplete Vector report draft and in drafting the DEIR was available to the public upon request to the County. Some parties obtained the supporting information via a California Public Records Act request. The DEIR was not required to include this material. To keep the EIR to a manageable length, source documents used in preparing an EIR need not be included in the EIR. See CEQA Guidelines § 15148. Scientific, engineering, and technical reports and similar documents relied on in preparing an EIR need not be incorporated into the body of the EIR or in an EIR appendix. *Id.*; see also *Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection* (2008) 43 Cal. 4th 936, 958 (nothing in CEQA requires that source materials be physically incorporated in an EIR); *Mount Shasta Bioregional Ecology Ctr. v. County of Siskiyou* (2012) 210 Cal. App. 4th 184, 219 (an EIR may summarize information in a technical report without appending the report or incorporating the report by reference); *Anderson First Coalition v. City of Anderson* (2005) 130 Cal. App. 4th 1173 (the EIR's hydrological analysis was not incomplete when a study relied on in determining the drainage report was not included in the EIR).

This response is not satisfactory. If, in fact, the 2015 Vector Report only exists in draft form and was never completed, this response begs the question, why the County felt comfortable relying on emission estimates that accompany said incomplete report.

Further, the County's response regarding keeping the EIR "to a manageable length" is nothing short of disingenuous given the voluminous information included elsewhere in the document: *e.g.*, in Appendices B and C to Appendix M-2 to the 2015 Final EIR (see Draft SREIR, Vol. 7), which together provide 1,675 pages of ambient air quality modeling file printouts, and Appendix W to the 2015 Draft EIR, which provides 1,611 pages of traffic modeling file printouts. Remarkably, the 2015 Draft EIR also provides 2,169 pages of San Joaquin Valley Air Pollution Control District ("SJVAPCD" or "District") documents which are readily available online.

Further, the County in its above cited responses claims that "[a]ll of the supporting information used in both the incomplete Vector report draft and in drafting the DEIR was available to the public upon request." This is not correct. Appendix M-4 to the 2015 Final EIR (Draft SREIR, Volume 7), which provides a review of some of the spreadsheets prepared by Vector Environmental, Inc., refers to two spreadsheets ("SS_EQUIP_EMS_V2.xlsx" and "KC_WELL_STATS_BY_ZONE_V2.XLSX") that were used to derive the revised emission estimates presented in the 2015 Final EIR. Neither of these spreadsheets was provided by the County to the requesting parties. Instead, the County provided only superseded versions of these spreadsheets ("CORRECTED_SS_EQUIP_EMS_V1.XLSX," "CORRECTED_SS_EQUIP_EMS_V1 - Copy," and "KC_WELL_STATS_BY_ZONE.")⁸

This failure to provide for public review the main supporting technical report for an environmental impacts section in an EIR is highly unusual and entirely inconsistent

⁸ Based on review of files contained on four CDs received from the County by Shute Mihaly & Weinberger on November 3, 2015.

with common practice, especially for a complex project with such severe and long-lasting environmental impacts. In fact, in my almost two decades experience with reviewing CEQA documents, I do not remember a single other EIR that did not provide the supporting technical air quality report.⁹ Perplexingly, the County provides the accompanying technical reports for other environmental impacts sections in appendices without following its stated objective “to keep the EIR to a manageable length.” Even more bewildering is that the County felt the need to provide as support a 1,056-page review of the spreadsheets prepared by Vector Environmental, Inc., with Appendix M-4 to the 2015 Final EIR (including hundreds of pages of modeling printouts) instead of simply using the same excuse that “scientific, engineering, and technical reports and similar documents used in preparing an EIR need not be incorporated into the body of the EIR or in the EIR appendix.”

I.A.2 Draft SREIR, Vol. 4, Appendix I

The Draft SREIR, p. 4.3-79, claims that emission estimates presented in the air quality section are presented in Appendix I of the 2015 Final EIR:

Source data and emissions associated with the Project were determined based on the Air Quality Technical Report prepared by Vector Environmental, Inc. (Vector). Air quality impacts associated with the Project are separated by construction and operational emissions. The emissions tables derived from the data provided by Vector are presented in Appendix I of the 2015 FEIR (SREIR Volume 4).|

Review of the cited Appendix I shows that the provided information is entirely inadequate to support the emission estimates provided in the Draft SREIR:

First, Appendix I provides only summary data tables (none of which indicate the units of measurement in which emission estimates are provided) but provides neither the assumptions nor the methodology that support the presented emission estimates.

Second, Appendix I contains only seven (7) tables with emission estimates, whereas the Draft SREIR provides 21 tables with emission estimates, as shown in Table 1 below.

⁹ Not all EIRs included the appendices to the technical air quality reports but those were typically made available upon request.

**Table 1: Comparison of data tables for emission estimates
 in Draft SREIR and Draft SREIR, Vol. 4, Appendix I**

Draft SREIR	Draft SREIR, Vol. 4, Appendix I
Table 4.3-12: Kern County Facility Construction Emissions during a Single Year (tons/year)	
Table 4.3-13: Total Kern County Facility Construction Emissions over the Project Period (2015 – 2035) (Tons/Year)	
Table 4.3-14: Total Estimated Emissions from Construction of Permit Exempt Equipment and Small Production Settings	Table AQ-1 Construction of permit-exempt equipment and small production settings
Table 4.3-15: Estimated Annual Emissions Associated with Drilling of Wells in 2012 and 2035	
Table 4.3-16: Estimated Annual Emissions Associated with Rework of Wells in 2012 and 2035	
Table 4.3-17: Estimated Annual Emissions Associated with Well Stimulation in 2012 and 2035	
Table 4.3-18: Estimated Annual Emissions Associated with Well Abandonment in 2012 and 2035	
Table 4.3-19: Total Annual Estimated Emissions from Well Construction	
Table 4.3-20: Estimated Change in Operational Emissions For Stationary Source Equipment	
Table 4.3-21: Uncontrolled and Controlled Fugitive Volatile Organic Emissions	Table AQ-3 Fugitive VOC
Table 4.3-22: Estimated Annual Criteria Pollutant Emission Generated by Routine Business Travel (tons per year)	Table AQ-4 Routine business travel
Table 4.3-23: Estimated Annual Emission Generated by Routine Well Operations	
Table 4.3-24: Estimated Annual Emission Generated by Facility Inspection	Table AQ-5 Facility inspection
Table 4.3-25: Estimated Annual Emission Generated by Routine Well Maintenance	
Table 4.3-26: Estimated Annual Emission Generated by Mobile Sources	
Table 4.3-27: Total Estimated Emissions from the Project in Tons per Year	
Table 4.3-28: Total Estimated Emissions from the Project Non-Permitted Equipment and Activities in Tons per Year	
Table 4.3-29: Total Estimated Incremental Emissions from the Project Non-Permitted Equipment and Activities in Tons per Year	
Table 4.3-30: Total Estimated Incremental Emissions from the Project Non-Permitted Equipment and Activities per New Well in Tons per Year	
Table 4.3-31: Total Estimated Incremental Emissions from the Project Non-Permitted Equipment and Activities per New Well in Tons per Year	
Table 4.3-32: Total Estimated per Well Emissions for Consideration in Calculating Oil and Gas Emission Reduction Agreement Fees in Tons per Year	

Draft SREIR	Draft SREIR, Vol. 4, Appendix I
	Table AQ-2 Well Abandonment, drilling, stimulation, rework, maintenance, and operation ^a

Note: Table headings in *italics* indicate tables with revisions to emission estimates in the 2015 Final EIR

a Draft SREIR, Vol. 4, Appendix I, Table AQ-2, which provides emissions from well abandonment, drilling, stimulation, rework, maintenance, and operation does not have a corresponding table in the Draft SREIR. Based on its title, it appears to sum emissions from Tables 4.3-15 through 4.3-18 and 4.3-20.

As shown, Appendix I provides tables for only a few emission categories, *i.e.*, those associated with construction of permit-exempt equipment and small production settings, fugitive VOC from wells, routine business travel, and facility inspection. Thus, none of the Draft SREIR's 14 other tables summarizing estimated emissions from the Project are supported by Appendix I.

Third, the data tables in Appendix I were prepared for and appended to the 2015 Draft EIR. The 2015 Final EIR substantially revised the emission estimates in 11 data tables (*see* Comment I.A.3),¹⁰ including Table 4.3-14. Because the 2015 Final EIR did not provide an update to the 2015 Draft EIR's Appendix I, Table AQ-1 self-evidently cannot match the emission estimates presented in Draft SREIR, Table 4.3-14.

In sum, the emission estimates presented in the Draft SREIR are not supported.

I.A.3 Draft SREIR, Vol. 7, Appendix M-4

The 2015 Final EIR substantially revised and reduced emission estimates in 11 tables in the air quality section, which were incorporated into the Draft SREIR. (Just as an example, the 2015 DEIR, Table 4.3-27, estimates total emissions from the Project in 2015 at **22,673 tons of NO_x**, **2,720 tons of PM₁₀**, and **1,944 tons of PM_{2.5}**; in contrast, the 2015 FEIR, Table 4.3-27, estimate total emissions from the Project in 2015 at **13,677 tons of NO_x**, **1,791 tons of PM₁₀**, and **1,328 tons of PM_{2.5}**.) As support for these revisions, the 2015 Final EIR provided Appendix M-4 (*see* Draft SREIR, Vol. 7) entitled *ANT Proposal: Emissions Validation and Mitigation Menu* (hereafter "ANT Report"). The ANT Report was submitted to the County by a representative of the oil and gas industry on August 24, 2015.¹¹ The ANT Report reviews some of the spreadsheets supporting the above-discussed incomplete 2015 Vector Report and identifies two substantial errors:

¹⁰ 2015 Final EIR, pp. 7-192 through 7-211 (providing revisions to Tables 4.3-12, 4.3-13, 4.3-14, 4.3-15, 4.3-20, 4.3-27, 4.3-28, 4.3-29, 4.3-30, 4.3-31, and 4.3-32).

¹¹ Jonathan Lilien, Chevron North America Exploration and Production Co., Email to: Lorelei Oviatt, County of Kern, Re: Transmission of ANT Proposal, August 24, 2015, 5:15 pm.

I. Correction to Stationary Source Equipment Numbers

Two corrections are needed to the projected stationary source equipment numbers provided by Vector Environmental. The first is that the growth factor in the spreadsheet for the stationary source information changed (primarily KR) resulting from the manner in which abandoned wells were accounted for. The growth factor is now smaller than previously identified. The change in growth factor resulted in changes to spreadsheets "SS_EQUIP_EMS_V2.slsx" and "KC_WELL_STATS_BY_ZONE_V2.XLSX".

In addition to this first correction, the spreadsheet, "SS_EQUIP_EMS_V2.slsx", contained an incorrect factor. The factor used in the equation for projecting needed equipment capacity for small producers should have been expressed as a fractional value (0.10). However 10% (integer value) was used to estimate the amount of equipment at buildout. Consequently, emissions from construction activity were significantly overestimated. The values have been revised accordingly.

Revised spreadsheets are included in Appendix A.

II. Correction to Total Project Emissions Calculation

A correction is needed to the total project emissions calculation of the draft EIR. The worksheet used to calculate the total project emissions incorrectly includes the incremental stationary source permitted equipment emissions rather than the stationary source construction emissions.

Specifically, the tab "Totals VERA" includes a table at the bottom "Permitted Emissions". The data in the table "Permitted Emissions" comes from the tab, "Permitted". The "Permitted" tab data that is referenced is not linked to construction emissions. Instead it appears to be pulling the incremental increase in permitted stationary source emissions. These numbers should be adjusted to reference the table "Construction" in the "Permitted" tab.

In addition, the ANT Report provides a revised, lower load factor for well drilling.¹² Based on these corrections, the 2015 Final EIR (and by extension the Draft SREIR) provides substantially revised emission estimates for construction and operation of permitted stationary sources.

The findings and revisions by the ANT Report to the emission estimates presented in the 2015 Draft EIR illustrate the importance of a) providing adequate support for and b) independent review of any emission estimates presented in the EIR for the Project. This opportunity should not only be provided to the Project proponents (in whose interest it is to minimize impacts) but also to the general public.

I.B Internal Inconsistencies of Emission Estimates

As discussed below, several of the summary tables for emission estimates presented in the Draft SREIR (and 2015 Final EIR) are not consistent with the ANT Report or the data tables they allegedly summarize. The reason for these discrepancies cannot be resolved

¹² ANT Report, pp. 2-5.

without access to final revision to the underlying files, which were not provided in the record or upon request.

I.B.1 Draft SREIR, Table 4.3-13 (Emissions from Construction of SJVAPCD-Permitted Stationary Source Equipment)

I reviewed the revised emission estimates provided by the ANT Report for emissions from construction of permitted stationary source equipment and compared them to those presented in the Draft SREIR. “Permitted” in this context refers to stationary source equipment permitted by the SJVAPCD such as boilers, internal combustion engines, process heaters, flares, etc. I found that the revised emission estimates presented in Draft SREIR *Table 4.3-13: Total Kern County Facility Construction Emissions over the Project Period (2015 – 2035) (Tons/Year)*, which is identical to Table 4.3-13 in the 2015 Final EIR (see Draft SREIR, Vol. 7, Final EIR, Chapter 12, p. 12-16), do not match those presented in the ANT Report, as summarized in Table 2.¹³

Table 2: Discrepancy in construction emissions for SJVAPCD-permitted stationary source equipment between ANT Report and Draft SREIR, Table 4.3-13

	2035 Emissions (tpy)			
	NO _x	ROG	PM ₁₀	PM _{2.5}
ANT Report, Appx. A ^a	14,127.3	1,698.5	1,036.7	920.6
Draft SREIR, Table 4.3-13	13,290.8	1,594.4	975.6	866.1
Discrepancy	836.5	104.1	61.1	54.5

a Data from ANT Report, Appx. A, pdf 71: CalEEMod run *Table 2.1 Overall Construction* for ‘Total Kern County’

Neither the Draft SREIR nor the 2015 Final EIR provide any discussion of this discrepancy. Therefore, the emission estimates presented in the Draft SREIR, Table 4.3-13, are not supported by substantial evidence in the record.

I.B.2 Draft SREIR, Table 4.3-19 (Well Construction Emissions)

Table 4.3-19 allegedly provides the total of all annual construction-related emissions from well construction, which includes well drilling, well rework, well stimulation, and well abandonment. To verify, I calculated total annual construction-related emissions due to these activities from the respective data tables in the Draft EIR, *i.e.*, Tables 4.3-15 through 4.3-18, for the year 2035 for four pollutants (NO_x, ROG, PM₁₀, and PM_{2.5}).

¹³ The emission estimates in Draft SREIR, Table 4.3-20: Estimated Change in Operational Emissions For Stationary Source Equipment were correctly calculated from two tables included in ANT Report, Appendix: Kern County Baseline Emissions and Projected Buildout and Total Kern County – 2035 Emissions from Stationary Source Equipment by subtracting the former from the latter.

As shown in Table 3, the total emissions provided by the Draft SREIR in Table 4.3-19 for 2035 do not correspond to these calculated total emissions.

Table 3: Discrepancy between total well construction emissions in 2035 calculated from Draft SREIR data tables and presented in Draft SREIR Table 4.3-19

Draft SREIR	Emission Category	2035 Emissions (tons/year)			
		NOx	ROG	PM10	PM2.5
Table 4.3-15	Well Drilling	3,237.14	1,411.06	305.25	109.98
Table 4.3-16	Well Rework	741.13	58.91	67.21	25.13
Table 4.3-17	Well Stimulation	5.06	5.06	45.70	6.14
Table 4.3-18	Well Abandonment	143.56	13.92	12.05	5.01
Total calculated		4,126.89	1,488.95	430.21	146.26
Total from Table 4.3-19		4,221.13	1,491.05	430.85	146.85
Discrepancy		(94.24)	(2.1)	(0.64)	(0.59)

I.B.3 Draft SREIR, Table 4.3-27 (Total Project Emissions)

Draft SREIR, Table 4.3-27, presents total annual estimated emissions from both construction and operational activities (permitted, non-permitted, and permit exempt equipment, which refers to permits issued by the SJVAPCD) for the Project. The Draft SREIR fails to provide citations to the respective source tables; I recommend that any revision to the document include those. Further, the text should clarify that a) 'Drilling;' 'Stimulation;' 'Rework;' and 'Maintenance' refer to well drilling, well stimulation, well rework, and well maintenance and b) 'Operation' refers to routine well operations. The respective activities and corresponding tables in the Draft SREIR are:

- Construction of permitted equipment (Table 4.3-12);
- Operation of permitted equipment (Table 4.3-20);¹⁴
- Construction of permit-exempt equipment and small production settings (Table 4.3-14);
- Well abandonment (Table 4.3-18);
- Well drilling (Table 4.3-15);
- Well stimulation (Table 4.3-17);
- Well rework (Table 4.3-16);

¹⁴ The Draft SREIR, p. 4.3-106, states that "annual emissions from operation of permitted equipment have been calculated by dividing the projected change in the permitted equipment emissions at Project build-out in 2035 by the number of Project years from 2015 to 2035 (i.e., 21 years)." However, the respective table, Table 4.3-20: Estimated Change in Operational Emissions For Stationary Source Equipment, already provides annual emissions in tons/year, thus, these emissions may not be divided by 21 years for inclusion in Table 4.3-27.

- Well maintenance (Table 4.3-25);
- Well operations (Table 4.3-23);
- Fugitive VOC from well heads (Table 4.3-21);
- Routine business travel (Table 4.3-22); and
- Facility inspection (Table 4.3-24).

To verify the emissions presented in Table 4.3-27, I calculated total emissions from the 12 above-cited tables for four pollutants (NO_x, VOC, PM₁₀, and PM_{2.5}) for the year 2035. Table 4 compares total emissions calculated from these source tables to the total emissions provided by the Draft SREIR, Table 4.3-27. For better readability, Table 4 is arranged according to the table numbers as they appear in the Draft SREIR and separated by construction and operational emissions.

Table 4: Discrepancy between total Project emissions in 2035 calculated from Draft SREIR data tables in 2035 and presented in Draft SREIR Table 4.3-27

Draft SREIR	Emission Category	2035 Emissions (tpy)			
		NOx	ROG	PM10	PM2.5
Construction					
Table 4.3-12	Construction of permitted equipment	633	76	46.5	41.2
Table 4.3-14	Construction of permit-exempt equipment and small production settings	32	4	2	2
Table 4.3-15	Well drilling	3,237.14	1,411.06	305.25	109.98
Table 4.3-16	Well rework	741.13	58.91	67.21	25.13
Table 4.3-17	Well stimulation	5.06	5.06	45.70	6.14
Table 4.3-18	Well abandonment	143.56	13.92	12.05	5.01
Operation					
Table 4.3-20	Operation of permitted equipment	1,025.29	1,756.34	475.73	475.73
Table 4.3-21	Fugitive VOC from well heads		2,946		
Table 4.3-22	Routine business travel	28.5	11.1	21.2	7.2
Table 4.3-24	Facility Inspection	0.22	0.15	267.14	26.89
Table 4.3-25	Well Maintenance	801.54	78.88	166.19	37.99
Table 4.3-23	Well Operations	118.35	2,568.7	381.77	39.05
Totals					
Total Calculated		6,766	8,930	1,791	776
Total from Table 4.3-27		8,215	11,809	2,316	1,548
Discrepancy		(1,449)	(2,879)	(525)	(772)

As shown, the discrepancy between the calculated total and the total provided in Draft SREIR, Table 4.3-27, is substantial. All subsequent summary tables in the Draft SREIR, Tables 4.3-28 through 4.3-32, rely on Table 4.3-27 and are, thus, similarly incorrect.

I.C Conclusion Regarding Lack of Support for Emission Estimates

As demonstrated in the above comments, several of the emissions estimates presented in the Draft SREIR's emissions tables are incorrect and all are unsupported. The scant information provided by the County that is intended to allow for verification of the presented emission estimates (Appendix I to the Draft EIR and Appendix M-4 to the Final EIR) is not only inadequate but also inconsistent with the emission estimates presented in the Draft SREIR.

The County may attempt to argue that the sum of the discrepancies in the summary tables is negative, *i.e.*, "overestimates" Project emissions, and therefore the Draft SREIR's emission estimates are conservative. Such an explanation would not be acceptable given the substantial changes made to the emission estimates presented in the 2015 Draft EIR and Draft SREIR (based on the 2015 Final EIR) and the complete lack of an opportunity for independent review.

I have not reviewed the emission estimates underlying the health risk assessments presented in Appendix B to the SREIR, but it does not take much imagination to suspect that they may be similarly flawed.

II. The Draft SREIR's Presentation of Historic Ambient Air Quality in Kern County Is Inadequate, Incorrect, and Incomplete

The Draft SREIR provides updated air quality monitoring data from nine monitoring stations located in Kern County based on data maintained by the California Air Resources Board ("CARB") for the years 2016 through 2018, the most recent years for which data are available. Specifically, Table 4.3-3 summarizes a) maximum measured ambient pollutant concentrations at these monitoring stations for ozone, nitrogen dioxide ("NO₂"), and particulate matter ("PM") size fractions equal to or less than 10 and 2.5 micrometers in diameter ("PM₁₀" and "PM_{2.5}," respectively) and b) the number of days pollutant concentrations exceeded the respective state or national ambient air quality standards ("CAAQS" and "NAAQS").¹⁵ Table 4.3-3 is set up very poorly and is difficult to interpret even for experienced reviewers, let alone the general public. The Draft SREIR provides no discussion of the presented information to guide the public in reviewing this table. As discussed below, the information provided in Table 4.3-3 is inadequate, incorrect, and incomplete.

¹⁵ Draft SREIR, pp. 4.3-7 through 4.3-9 and Note to Table 4.3-4 "CARB, n.d."

II.A.1 Maximum Pollutant Concentrations

The presentation of maximum pollutant concentrations in Table 4.3-3 is flawed:

- The table presents maximum pollutant concentrations at the monitoring stations for years 2016-2018 in the column “Maximum 24-Hour Concentration.” This presentation is incomplete because pollutant concentrations are monitored and reported separately for the state and national ambient air quality standards. For example, PM_{2.5} state statistics are based on California-approved samplers, whereas PM_{2.5} national statistics are based on samplers using federal reference or equivalent methods. The same applies for PM₁₀ state and national statistics; in addition, PM₁₀ state statistics are based on local conditions and PM₁₀ national statistics are based on standard conditions. In sum, state and national statistics may be based on different samplers and may provide different results. (For example, in 2018, the highest 24-hour PM₁₀ state measurement was 142.0 micrograms per cubic meter (“ $\mu\text{g}/\text{m}^3$ ”) and the highest measured 24-hour PM₁₀ federal measurement was 136.1 $\mu\text{g}/\text{m}^3$. I recommend that Table 4.3-3 be revised to provide maximum measured concentrations for both comparison to the state and national ambient air quality standards. (I note that the 2015 Draft EIR correctly provided separate measured concentrations for the CAAQS and NAAQS for the years 2010-2012.¹⁶) A revision of Table 4.3-3 would benefit from additional formatting, *e.g.*, bold or italic fonts for pollutants and/or indented paragraphs for monitoring stations.
- The header summarizing measured pollutant concentrations is labeled “Maximum 24-Hour Concentration.” This label is misleading as the only ambient air quality standards with 24-hour averaging periods for which data are provided in this table are those for PM₁₀ and PM_{2.5}; the other pollutants for which data are provided have standards with shorter averaging periods (1-hour NO₂ and 1-hour and 3-hour ozone). I recommend that this header be revised to read “Maximum Daily Monitored Concentration” and the applicable averaging period be provided alongside the pollutant names in the left-most column of Table 4.3-3.
- Further, the indication in table header “Maximum 24-Hour Concentration” that measured concentrations are provided in units of parts per million (“ppm”) or $\mu\text{g}/\text{m}^3$ is meaningless because the reviewer does not know in which units the various pollutants are presented. What’s more, NO₂ monitoring data are not reported in either of these two units but rather in units of parts per billion

¹⁶ Draft EIR, Table 4.3-4, pp. 4.3-8 and 4.39.

("ppb").¹⁷ I recommend that Table 4.3-3 be revised to specify the correct measurement units alongside the pollutant names (and averaging periods): 1-hour and 3-hour ozone measurements are reported in ppm, 1-hour NO₂ measurements in ppb, and 24-hour PM₁₀ and 24-hour PM_{2.5} measurements in µg/m³.

II.A.2 Measured vs. Estimated Number of Days Exceeding Ambient Air Quality Standards for PM₁₀ and PM_{2.5}

Table 4.3-4 summarizes the number of days exceeding the state and federal ambient air quality standards for years 2016 through 2018 based on data maintained by CARB. Review of the values presented in Table 4.3-3 with CARB data shows that incorrect values were reported for PM₁₀ and PM_{2.5}. Specifically, the values in Table 4.3-3 represent the number of days when PM₁₀ and PM_{2.5} concentrations measured at the monitoring stations exceeded the respective 24-hour ambient air quality standards. Because monitoring stations may not operate on all days of the year (for example, PM₁₀ measurements are usually collected every six days), the measured number of days exceeding the ambient air quality standards is often lower than the actual number of days on which exceedances occur. CARB specifically recommends paying attention to the "Estimated Days Above State Standard for PM₁₀" to determine how polluted the air is:¹⁸

2. How can I determine how polluted the air is where I live and work?

You may get a good idea of air quality in your area by clicking on the maps in the answer to [Question #4](#). But if you want more specific information, try the following:

1. Select a pollutant (for example, ozone or PM_{2.5} or PM₁₀);
2. Then locate a monitoring site close to your home or work; and
3. Then look at key indicators of air quality at this site, such as the "number of days" in a year that the pollutant reaches unhealthy levels (See [Question #5](#) for the definition of unhealthy air).
4. If you do this first for O₃, then for PM_{2.5}, and then for PM₁₀, you will get a good idea of the air quality where you live.

To get started, go to the [Top 4 Summary](#) web pages. When you get to the tables that show data, pay special attention to the number of *Days Above State Standard* for O₃ and the Estimated Days Above State Standard for PM₁₀. For PM_{2.5}, pay attention to how much the *Annual Average* exceeds the State PM_{2.5} standard (which is 12 micrograms per cubic meter). For toxics compounds, there are not many monitoring locations in the State, and

¹⁷ CARB, Air Quality Data Statistics; available at: <https://www.arb.ca.gov/adam/topfour/topfour1.php>. See notes for Top 4 Summary: Highest 4 Daily Maximum Hourly Nitrogen Dioxide Measurements.

¹⁸ CARB, iADAM, Frequently Asked Questions, June 10, 2020; available at: https://www.arb.ca.gov/adam/aqfaq/iADAM_FAQs.pdf.

CARB provides mathematical estimates on how many days pollutant concentrations would have been greater than the level of the standard had each day been monitored.¹⁹ For example, in 2016 and 2017, the Bakersfield monitoring station at 5558 California Avenue reported 21 and 16 days, respectively, on which measured PM10 concentrations exceeded the state 24-hour PM10 ambient air quality standard. CARB estimated the number of days during which pollutant concentrations exceeded the state 24-hour PM10 standard at 121.4 and 98.7 for 2016 and 2017, respectively.²⁰ Similarly, in 2016 and 2017, the Bakersfield monitoring station at 5558 California Avenue reported 23 and 28 days, respectively, on which measured PM2.5 concentrations exceeded the state 24-hour PM2.5 ambient air quality standard. CARB estimated the number of days during which pollutant concentrations exceeded the state 24-hour PM2.5 standard at 25.5 and 30.2 for 2016 and 2017, respectively.²¹ (*See Attachment A.*)

In sum, by presenting the “measured” number of days instead of the “estimated” number of days pollutant concentrations exceeded the ambient air quality standards, the Draft SREIR, Table 4.3-3, misleads the reviewer by portraying the air quality as better than it was during that time period.

¹⁹ CARB’s estimates take into account the “Year Coverage,” *i.e.*, the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest: “0” means that data represent none of the highest period; “100” means that the data represent the entire high period.

²⁰ In 2018, the measured number of days exceeding the standard was 13; however, CARB could not provide a statistically valid number for estimated days; thus, the estimated number of days can be reported as ≥ 13 .

²¹ In 2018, the measured number of days exceeding the standard was 13; however, CARB could not provide a statistically valid number for estimated days; thus, the estimated number of days can be reported as ≥ 13 .

III. The Draft SREIR Fails to Adequately Describe the Health Effects and Impacts on the Natural Environment of PM₁₀ and PM_{2.5}

The Draft SREIR, p. 4.3-13, provides the following brief discussion of the health effects of PM₁₀ and PM_{2.5} in the section *Criteria Pollutants and Health Effects*:

The size of particles is directly linked to their potential for causing health problems. PM₁₀ particles pose problems because they can get deep into lungs and the bloodstream. Being even smaller, PM_{2.5} will travel farther into the lungs. Exposure to such particles can affect both lungs and heart. Numerous scientific studies have linked particle pollution exposure to a variety of problems, including (EPA 2014b):

- Premature death in people with heart or lung disease;
- Nonfatal heart attacks;
- Irregular heartbeat;
- Aggravated asthma;
- Decreased lung function; and
- Increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing.

The Draft SREIR makes no attempt at discussing the health effects of inhalable particles,²² *i.e.*, particles that are small enough to penetrate the thoracic region of the respiratory system, depending on particle size. These effects, which are due to exposure over both the short term (hours, days) and long term (months, years), are well documented. The World Health Organization (“WHO”), for example, notes:

There is good evidence of the effects of short-term exposure to PM₁₀ on respiratory health, but for mortality, and especially as a consequence of long-term exposure, PM_{2.5} is a stronger risk factor than the coarse part of PM₁₀ (particles in the 2.5-10 μm range). All-cause daily mortality is estimated to increase by 0.2-0.6% per 10 $\mu\text{g}/\text{m}^3$ of PM₁₀. Long-term exposure to PM_{2.5} is associated with an increase in the long-term risk of cardiopulmonary mortality by 6-13% per 10 $\mu\text{g}/\text{m}^3$ of PM_{2.5}.

The Draft SREIR also does not discuss the health effects of inhalable particles depending on their source, for example fugitive dust, which is mostly PM₁₀, vs. combustion particulates, which are mostly PM_{2.5}. (The latter includes diesel particulate matter, which the Draft SREIR discusses in the health risk assessment section under *Health Effects and Risk of Toxic Air Contaminants* without mentioning that diesel

²² The 10 μm size does not represent a strict boundary between respirable and non-respirable particles but has been agreed upon for monitoring of airborne particulate matter by most regulatory agencies.

particulate matter falls within the PM_{2.5} size fraction.²³) My 2015 comment letter provided a discussion on this issue, which are reiterated in part here:

From a health perspective, the major difference between entrained road dust and combustion emissions is the size and composition of the particles: combustion particles are very small mostly sulfates particles that are readily dissolved in the lungs while road dust PM is mostly much larger silica and iron oxides, which are not lung soluble. Any emission reductions used to mitigate impacts of increases in PM₁₀ emissions must have the same qualitative health and environmental impacts as the actual emissions.

The effects of inhaling particulate matter have been widely studied in humans and animals and include asthma, lung cancer, cardiovascular issues, and premature death. The health risk from an inhaled dose of particulate matter depends on the size, composition, and concentration of the particles. The size of the particle is a main determinant of where in the respiratory tract the particle will come to rest when inhaled. Larger particles are generally filtered in the nose and throat and do not cause problems, but particulate matter smaller than about 10 micrometers in diameter, PM₁₀ or the so-called thoracic fraction, can settle in the bronchi and lungs and cause health problems. PM_{2.5}, or the respirable fraction, tends to penetrate into the gas-exchange regions of the lung, and ultrafine particles, PM_{0.1}, may pass through the lungs to affect other organs. Most combustion particulate matter emissions, including diesel exhaust, consist mostly of particles smaller than 0.1 micrometers. Particulates generated during combustion of fossil fuels and entrained road dust particles have fundamentally different physical and chemical properties with larger particles causing less severe health impacts.

Historically, health impacts due to particulate matter were regulated through mass-based PM₁₀ ambient air quality standards. However, a substantial amount of new research has been published, documenting new health impacts at much lower concentrations and for different size fractions of particulate matter than was previously known and reflected in PM₁₀ ambient air quality standards. This new research documents that the inhalation of particulate matter, particularly the smallest particles, causes a variety of health effects, including premature mortality, aggravation of respiratory (*e.g.*, cough, shortness of breath, wheezing, bronchitis, asthma attacks) and cardiovascular disease, declines in lung function, changes to lung tissues and structure, altered respiratory defense mechanisms, and cardiopulmonary and lung cancer mortality, among others.

Since 1996, more than 2,000 peer-reviewed studies have been published validating earlier epidemiologic studies that link both acute and chronic fine particle pollution with serious morbidity and mortality. This research has also expanded the list of health effects associated with fine particle pollution and has identified health effects at considerably lower exposure levels than previously

²³ Draft SREIR, pp. 4.3-24 and 4.3-25.

reported. Overwhelming scientific evidence shows that long-term exposure to fine particulate air pollution contributes to pulmonary and systemic oxidative stress, inflammation, progression of atherosclerosis, and risk of ischemic heart disease and death. A recent study found that an increase in PM_{2.5} air pollution of 10 micrograms per cubic meter ("µg/m³") was associated with approximately a 6% increase in cardiopulmonary mortality and an 8% increase in lung cancer mortality.

Short-term exposure is equally damaging and contributes to complications of atherosclerosis, such as plaque vulnerability, thrombosis, and acute ischemic events. EPA concluded with respect to short-term exposure studies, that epidemiological evidence supported likely causal associations between PM_{2.5} and both mortality and morbidity from cardiovascular and respiratory diseases." A study of almost 13,000 patients evaluated the role of fine particulate matter exposure in triggering acute ischemic heart disease event. The study found a sharply elevated risk of heart attacks for people with clogged arteries after just a day or two of short-term exposure to fine particulate matter. This study was published in the American Heart Association's peer-reviewed journal *Circulation*. One coauthor of the study stated that the results should prompt heart doctors to advise those with coronary heart disease to stay indoors as much as possible on particularly sooty days and that he was already changing his advice to patients based on these results, even advising in severe cases to move to a less polluted environment.

The EPA and CARB, in their review and analysis of the new information on health impacts of particle pollution, concluded that coarse and fine particles have fundamentally distinct physical and chemical properties and health effects, and thus should be separately regulated and measured so that effective control strategies could be developed. As a result, EPA and CARB promulgated new ambient air quality standards for PM_{2.5} and the CARB lowered the standards for PM₁₀. The PM_{2.5} standards are *not* subsets of the PM₁₀ standards, but new standards for a separate pollutant with distinguishable impacts.

Ultrafine particles, less than 0.1 µm, or PM_{0.1}, may be even more damaging to the cardiovascular system. There is evidence that ultrafine particles can pass through cell membranes and migrate into other organs, including the brain. It has been suggested that particulate matter can cause similar brain damage as that found in Alzheimer patients. Particles emitted from combustion sources are typically in this size range. It is becoming increasingly clear that the ambient air quality standards, which are mass-based, are not a proper measure of health hazards. Proposals for new regulations exist in some countries, with suggestions to limit the particle surface area or the particle number.²⁴

In addition to affecting human health, particulate air pollution also leads to visibility impairment and aesthetic impacts and affects the health of the natural environment.

²⁴ Pless, *op. cit.*, internal citations omitted.

While the Draft SREIR notes the existence of the state visibility standard,²⁵ it fails to provide a discussion of particulate air pollution beyond impacts on human health.

CARB describes the impact of particulate air pollution on visibility:

Visibility reduction is probably the most apparent symptom of air pollution. Visibility degradation is caused by the absorption and scattering of light by particles and gases in the atmosphere before it reaches the observer. As the number of fine particles increases, more light is absorbed and scattered, resulting in less clarity, color, and visual range. Light absorption by gases and particles is sometimes the cause of discolorations in the atmosphere but usually does not contribute very significantly to visibility degradation. Scattering by particulates impairs visibility much more readily. Particles that are the most effective at reducing visibility (per unit aerosol mass) have diameters in the range of 0.11.0 μm . Some types of particles such as sulfates scatter more light, particularly during humid conditions. Visibility standards are based on extinction coefficients, which is a measure of the light attenuation due to both absorption and scattering.²⁶

The SJVAPCD notes with respect to the impacts of PM_{2.5} on the natural environment:

PM_{2.5} can be transported from sources hundreds of miles away to contribute to visibility problems at remote locations, such as the Sierra Nevada mountain range and associated national parks. As fine particulate matter settles out of the air, it can make lakes and streams acidic, change an ecosystem's nutrient balance, and affect ecosystem diversity. PM_{2.5} can affect vegetation by damaging foliage, disrupting the chemical processes within plants, reducing light adsorption, and disrupting photosynthesis.²⁷

Visibility reduction is a major issue in the County due to frequent windstorms and the Project would aggravate this existing problem, as discussed in Comment VII.

IV. The Discussion of the Impact of OG-ERA Implementation (pursuant to Mitigation Measure 3.4-8) on PM_{2.5} Mitigation Is Inadequate

The County's primary mitigation measure for addressing significant impacts on air quality, mitigation measure MM 4.3-8, involves the collection of fees from Project applicants under a Voluntary Emission Reduction Agreement ("VERA"), or Development Mitigation Contract ("DMC"), with the SJVAPCD entitled the Oil and Gas Emission Reduction Agreement ("OG-ERA"). Fees collected under the OG-ERA are

²⁵ Draft SREIR, Table 4.3-7.

²⁶ CARB, Visibility-Reducing Particles & Health; available at: <https://ww2.arb.ca.gov/resources/visibility-reducing-particles-and-health>.

²⁷ SJVAPCD, 2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards, November 15, 2018, p. 3-5.

intended to be spent on pollution-reducing projects administered by the SJVAPCD. The court in *King and Gardiner Farms, LLC v. County of Kern* found with respect to this mitigation measure:

In summary, the County violated CEQA in two ways related to MM 4.3-8. First, the EIR did not discuss the impact of the measure on PM_{2.5} emissions or, alternatively, provide a rational explanation for why there is no separate discussion of the measure's impact on PM_{2.5} emissions. Second, MM 4.3-8 does not provide for enforceable mitigation of PM_{2.5} emissions, and there is no finding that mitigation of this specific pollutant was not feasible. These deficiencies must be remedied on remand. We need not address the question of whether substantial evidence supports the Board's findings relating to MM 4.3-8 because, after proceedings on remand, the EIR's discussion of that measure will be revised and it is uncertain what findings of fact the Board will make based on the revised discussion and any revisions to MM 4.3-8.

To comply with the court's findings, the Draft SREIR, pp. 4.3-118 through 4.3-121, provides additional discussion of how implementation of the OG-ERA pursuant to mitigation measure MM 4.3-8 would effectively mitigate for PM_{2.5} emissions from the Project. Unfortunately, this discussion serves to confuse rather than elucidate and fails to provide an adequate discussion of the measure's impact on PM_{2.5} emissions, as discussed in the following comments. As discussed below, the Draft SREIR fails to satisfy the mandate of the court.

IV.A The Draft SREIR's Characterization of Particulate Matter Size Fractions and Potential PM_{2.5} and PM₁₀ Emission Reductions Is Incorrect

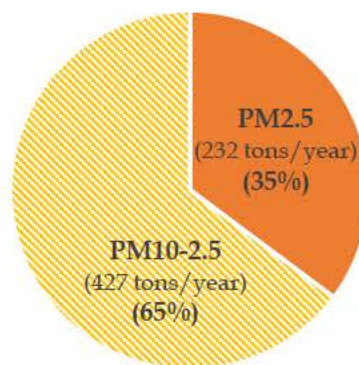
The Draft SREIR incorrectly discusses the effect of mitigation measure MM 4.3-8 on emission reductions of PM_{2.5} and PM₁₀ because it incorrectly characterizes particulate matter size fractions, as discussed below. (The relevant size fractions in this context include: inhalable coarse particles, designated PM₁₀, which are particles with a diameter of 10 micrometers ("µm") or less; fine particles, designated PM_{2.5}, with a diameter of 2.5 µm or less; and the coarse fraction of PM₁₀ with a diameter of greater than 2.5 µm and equal to or less than 10 µm, designated PM_{10-2.5}.)

Specifically, the Draft SREIR, p. 4.3-118, provides:

Implementation of the OG-ERA will effectively mitigate for Project emissions of NO_x, ROG, PM₁₀, and PM_{2.5}. Table 4.3-31 shows that PM₁₀ and PM_{2.5} would have estimated average annual incremental emissions of 659 tons per year of PM₁₀ and 232 tons per year of PM_{2.5}. This means that of total average annual incremental emissions of PM due to Project implementation, 35% of the emissions are PM_{2.5} emissions and 65% of the emissions are PM₁₀ emissions.

The Draft SREIR correctly calculates the percentage of PM_{2.5} of total estimated particulate matter emissions at 35% by dividing the PM₁₀ emissions (659 tons/year) by PM_{2.5} emissions (232 tons/year.) However, the following statement that “of total average annual incremental emissions of PM due to Project implementation... 65% of the emissions are PM₁₀ emissions” is nonsensical. As the Draft SREIR recognizes in its first calculation and elsewhere,²⁸ PM_{2.5} is a subset of PM₁₀ with the remainder being PM_{10-2.5}. Thus, 65% of the emissions of 659 tons/year (427 tons/year) are PM_{10-2.5}, as illustrated in Figure 1.

**Figure 1: Particle size distribution
 in Project PM₁₀ emissions of 659 tons/year**



Unfortunately, this is not a one-time error but rather indicates a lack of comprehension while struggling to provide an explanation how the OG-ERA would effectively provide for PM_{2.5} emission reductions. Other instances of this mischaracterization include:

- p. 4.3-119: “The resulting fraction is that fraction of the PM that is PM_{2.5}, while the remainder of the PM is PM₁₀.” Again, the reference to “PM₁₀” is incorrect and instead refers to “PM_{10-2.5},” *i.e.*, the coarse fraction of PM₁₀ with a diameter of greater than 2.5 µm and equal to or less than 10 µm
- p. 4.3-20: “In fact, all of the potential emission reduction projects listed in the 2015 FEIR and this SREIR would reduce more PM_{2.5} than PM₁₀.” Since PM_{2.5} is a subset of PM₁₀, as acknowledged by the Draft SREIR elsewhere,²⁹ this statement is logically impossible. Rather, the potential emission reduction

²⁸ See, for example, Draft SREIR, Note (a) to Table 4.3-32, (“PM_{2.5} is a subset of PM₁₀...”), p. 4.3-117 (“... because PM_{2.5} is a subset of PM₁₀, any PM₁₀ emissions necessarily contain PM_{2.5} emissions.”), and p. 4.3-119 (“Because a particulate that meets the diameter requirement for PM_{2.5} necessarily meets the diameter requirement for PM₁₀...”).

²⁹ For example, Draft EIR, p. 4.3-117. (“... because PM_{2.5} is a subset of PM₁₀, any PM₁₀ emissions necessarily contain PM_{2.5} emissions.”)

projects would reduce more PM_{2.5} than the size fraction of PM₁₀ with a diameter between 2.5 and 10 micrometers, or PM_{10-2.5}.

Further, the Draft SREIR claims that “most of the example emission reduction projects funded by the OG-ERA would reduce diesel emissions, which are almost entirely composed of very small particulates and thus would overwhelmingly reduce PM_{2.5},” based the information provided in a new table, Table 4.3-AA, which is reproduced below.

Table 4.3-AA: Example Emission Reduction Projects that Could Be Funded by OG-ERA Fees

Example Emission Reduction Project	Source of Emissions	Weight Fraction of PM _{2.5} /Total PM	Weight Fraction of PM ₁₀ /Total PM	Percentage of PM _{2.5} of Total PM	Percentage of PM ₁₀ of Total PM
Replacing or retrofitting diesel-powered stationary equipment with electric or other lower-emissions engines	Diesel combustion from off-road equipment	0.937	0.96	97.6%	2.4%
Replacing or retrofitting diesel-powered school, transit, municipal, and other buses, car fleets, and maintenance equipment with electric or other lower-emission engines	Diesel combustion from on-road equipment	0.937	0.96	97.6%	2.4%
Reducing emissions from public infrastructure sources	Natural gas-fired stationary combustion engines	1	1	100%	0%
Changes to fleets and trucks, implementation of van pools or other trip-reduction programs	Gasoline combustion from on-road equipment	0.992	0.994	99.8%	1.2%

Table 4.3-AA shows the weight fractions of PM_{2.5} and PM₁₀ in total particulate matter (“Total PM”) from CARB’s speciation profiles found in the “PMSIZE” spreadsheet,³⁰ which provides particulate matter size fraction data for various source categories,³¹ and matches them to example projects that could be funded by OG-ERA fees. In addition, Table 4.3-AA presents two columns labeled “Percentage of PM_{2.5} of Total PM” and “Percentage of PM₁₀ of Total PM.” These labels are nonsensical because the percentage of a particle size category of total PM is the same as its weight fraction in this context.

³⁰ Draft SREIR, p. 4.3-119. (“Utilizing CARB’s speciation profiles and “PMSIZE” spreadsheet, example emission reduction projects that would be funded by the OG-ERA fees would result in the reductions of PM₁₀ and PM_{2.5} shown in Table 4.3-AA”)

³¹ See CARB, Speciation Profiles Used in CARB Modeling; available at: <https://ww2.arb.ca.gov/speciation-profiles-used-carb-modeling>

Instead, the column “Percentage of PM_{2.5} of Total PM” represents the “Percentage of PM_{2.5} of PM₁₀.” For example, for diesel combustion from off-road equipment: $0.937/0.96 = 0.976$, as correctly described by the Draft SREIR:

Because a particulate that meets the diameter requirement for PM_{2.5} necessarily meets the diameter requirement for PM₁₀, to determine the composition of PM from various sources using the “PMSIZE” spreadsheet, the weight fraction of PM_{2.5} is divided by the weight fraction of PM₁₀.

Th values presented in the right-most column in Table 4.3-AA, labeled “Percentage of PM₁₀ of Total PM,” are calculated as the remainder between PM (100%) and the percentage of PM_{2.5} in PM₁₀. (For example, for diesel combustion from off-road equipment: $100\% - 97.6\% = 2.4\%$.) The resulting percentages have no meaning and do not provide any information about potential emission reductions for PM₁₀ as claimed.

These errors appear to stem from the Draft SREIR’s improper conflation of the term “PM” as used throughout its discussion of the OG-ERA, which equates to “PM₁₀” in the emissions tables, and the term “Total PM” in CARB’s speciation profiles, which refers to total suspended particulates which contains particles larger than PM₁₀. (For example, the weight fraction of PM₁₀ in diesel combustion from off-road equipment is 0.96, thus, 4% of particles within Total PM are larger than 10 μ m.)

IV.B The Draft SREIR Fails to Demonstrate that Sufficient Emission Reductions Are Available in Kern County and the San Joaquin Valley Air Basin to Offset Project PM_{2.5} Emissions

There simply may not be enough pollution-reducing projects in the San Joaquin Valley Air Basin, let alone in Kern County, to reduce Project pollutant emissions to net zero. Specifically, the Draft SREIR estimates total incremental emissions not offset under District Rule 2201.

The Draft SREIR, p. 4.3-117, estimates the dollar amount generated every year for mitigation fees under the OG-ERA to fund emission reduction projects at between \$12 million and \$118 million based on the 2016 cost per ton of pollutant removed and an estimate of 1,800 permits issued by the County per year. Thus, over the course of 21 years, the Project could generate between \$252 million and \$2.5 billion³² based on the Draft SREIR’s assumptions or more because:

- a) the County may issue in excess of 1,800 permits per year (the Project allows for up to 3,647 per year); and

³² (\$12 million/year) \times (21 years) = **252 million**;
 (\$118 million/year) \times (21 years) = **2,478 million**.

- b) the cost per ton of emissions reduced will likely dramatically increase once the “low-hanging fruit” have been picked, *i.e.*, most easily achievable emission reduction projects have been funded. In fact, as the Draft SREIR, p. 4.3-118, recognizes, the cost per ton of pollutant increased from \$7,495 in 2016 to \$10,025 in 2019, *i.e.*, by more than \$2,500 or 34%.³³ In addition, increasingly stringent emission rules and routine replacement of older equipment in vehicle fleets will further decrease the pool of available older equipment to be retrofitted or replaced. Other programs such as CARB’s Carl Moyer Fund target the same projects, further lowering the amount of available emission reductions.

My review of the SJVAPD’s ISR Reports shows that the County’s estimate of **\$252 million to \$2.5 billion** amount dwarfs the total amount of fees collected over the entire 13-year history (2007-2019) of the ISR and VERA programs combined: **\$141 million** (\$57 million for ISR program and \$84 million for VERA program)³⁴

Even more astonishing is the disconnect between the amount of fees the County proposes to collect under the OG-ERA compared to the combined amount the District has spent over the past 13 years for emission reduction projects under the ISR and VERA programs: \$70 million (\$38 million for the ISR program and \$32 million for the VERA program). It is therefore not surprising that since 2016 when the District started collecting OG-ERA fees, the amount of fees received has by far outpaced the amount spent for emission reduction projects, leaving the SVAPCD’s 2019 ending balance with \$7.7 million for the ISR program and \$48.5 million for the VERA program, for a combined total of \$56 million.³⁵

Figure 2 illustrates the impact of the OG-ERA on the fee collection and expenditures under the ISR and VERA programs.

³³ $(\$10,025/\text{per ton}) / (7,495/\text{ton}) = 1.34$.

³⁴ See Attachment B.

³⁵ See Attachment B.

Figure 3: Combined ISR and VERA program fees received and spent by SJVAPCD (2007-2019)



The impact of the OG-ERA is even more pronounced when considering only the fee collection and expenditures of the VERA program, as shown in Figure 3.

Figure 3: VERA program fees received and spent by SJVAPCD (2007-2019)



As other commenters in the past have noted, it is unlikely that sufficient projects for emissions reductions can be located to offset Project emissions to net zero by spending the enormous amount of fees that would be collected under the OG-ERA, especially in a timely manner. The 2015 Final EIR, Chapter 7.2, p. 7-185, (Draft SREIR, Vol. 5) acknowledged that there “may be may be a slight lag time between collection of the air emissions mitigation fee... and the accomplishment of the emissions reductions funded

by the fee, due to the time required to solicit and vet proposals for emission reduction projects, award the funds, and complete construction or implementation, on a county-wide annual basis.” However, the 2015 Final EIR asserts that “the emission reductions from implementing the OG-ERA are expected to match the emissions from drilling new wells on an annual basis.” Clearly, four years into the OG-ERA, this expectation of an annual match is far from being achieved. Thus, the OG-ERA constitutes deferred mitigation at best, if not completely failing to achieve its goal of net zero Project emissions.

The Draft SREIR, p. 4.3-118, acknowledges that “the size and scope of such projects has not been implemented in the SJVAPCD;” however, it provides only a limp defense of the OG-ERA as a valid system arguing that “projects have clearly been implemented by the SJVAPCD in the past in full compliance with the ISR, VERA, and DMC.”

(The Draft SREIR further refers to CARB’s Carl Moyer program, which also provides funding for “cleaner than required engines and equipment,” as if the existence of even more available funding supported its claims. In fact, the contrary is true: the more funding exists for emission reduction projects, the less likely it is that the fees collected under the OG-ERA can be put to use as intended.) Tellingly, the Draft SREIR provides no correspondence with the SJVAPCD to back up its claim that “[e]mission reductions funded by the OG-ERA mitigation fees will offset the impacts from the new oil and gas activities resulting in a “no net increase” to contributions of designated criteria air emissions in the entire air basin.”³⁶ Instead, the Draft SREIR, p. 4.3-118, provides only a table with examples of potential emission reduction projects and their alleged costs:

Replace and upgrade vehicle fleets for County, cities, and other eligible entities	\$50 million
Upgrade school buses for public, private, churches, charitable organizations, and other eligible entities	\$150 million
Replace cars in disadvantaged communities	\$120 million
Truck upgrades and replacement for eligible entities	\$100 million
Fund new and upgraded transit programs	\$120 million

The Draft SREIR provides no support whatsoever for the costs cited in this table. Further, this table does not provide adequate support for the Draft SREIR’s claims as it covers only \$540 million worth of projects, which is a mere fraction of the \$2.5 billion or more the OG-ERA may generate. In other words, the Draft SREIR fails to provide substantial evidence to back up its claim that the Project would result in a “no net increase” of designated criteria air emissions.

³⁶ Draft SREIR, p. 4.3-118.

IV.C The Draft SREIR Fails to Demonstrate that the OG-ERA Would Result in Sufficient PM2.5 Emission Reductions

Under MM 4.3-8, the OG-ERA is intended to offset the Project's emissions increase for all pollutant from sources other than those permitted by the SJVAPCD to net zero. However, this is neither tracked nor enforceable under MM 4.3-8 and the OG-ERA as written.

Specifically, the fees collected under the OG-ERA from Project applicants for use by the SJVAPCD are calculated as the sum of emissions of three pollutants (NO_x+ROG+PM₁₀), as shown in Draft SREIR, Table 4.3-32. (The table additionally lists PM_{2.5} emissions which, as a subset of PM₁₀ emissions, are included in the sum of NO_x+ROG+PM₁₀.³⁷) The OG-ERA, provided in Appx. C to the Draft SREIR, contains no provision that the District use these fees to reduce emissions according to respective contribution of each pollutant to total calculated emissions. The Draft SREIR fails to demonstrate that the OG-ERA would result in sufficient emission reductions to support its claim that "all reasonable and feasible mitigation has been required and will reduce the air emissions as close to a "no net increase" from the current emissions over the next 21 years as is scientifically possible to quantify and confirm."³⁸ Specifically, the Draft SREIR's entire discussion of the effectiveness of this fee program relates only to reducing PM_{2.5} by reducing PM₁₀ emissions from combustion sources without providing an adequate discussion of whether this fee approach based on a combined pollutant total would result in adequate PM_{2.5} emission reductions.

I reviewed the emission reduction projects funded under SJVAPCD's Indirect Source Review ("ISR") and VERA programs to date and determined that a) funded projects overwhelmingly reduced NO_x emissions rather than PM_{2.5} emissions and b) a large amount of particulate matter emission reductions may be attributable to fugitive dust PM₁₀ rather than combustion PM_{2.5}.

My review is based on the following annual reports from the SJVAPCD and County: The SJVAPCD provides annual reports (July 1 through June 30) for the revenues, expenditures, and emission reductions achieved under the ISR and VERA programs (collectively "ISR/VERA Reports"). The ISR Reports break out the fees collected and spent as well as the amount of emission reductions achieved separately for the ISR and the VERA programs. The County provides annual progress reports on the Oil & Gas

³⁷ See, for example, Table 4.3-32, for 2015 (in tons/year): (NO_x: 2.79)+(ROG: 0.48)+(PM₁₀:0.18)=3.45; Per Well Projected Emissions in Table 4.3-32 are 3.45 tons/year and PM_{2.5} emissions are specified at 0.11 tons/year.

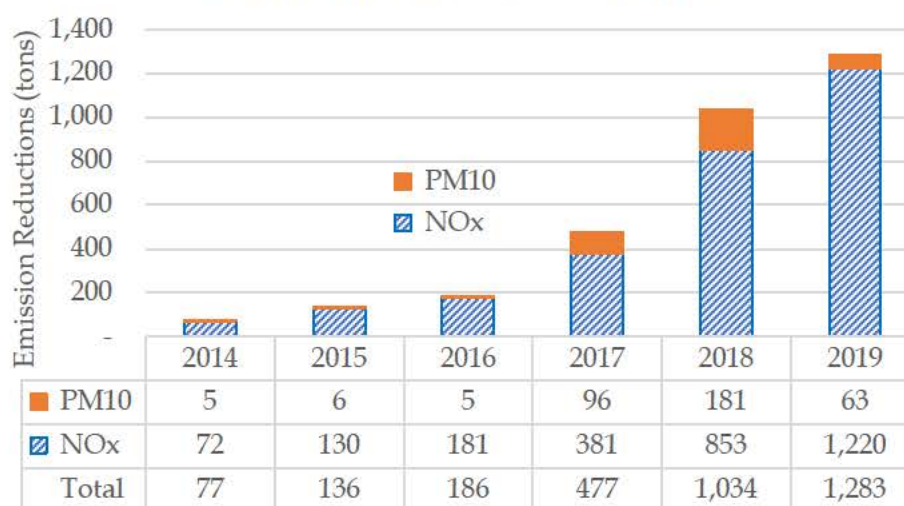
³⁸ Draft SREIR, p. 4.3-122.

Permitting Program (“County Annual Fee Reports”). The following discussion is supported by Attachments B and C.

IV.C.1 PM10 Emission Reductions Compared to NOx Emissions under VERA Program

My review found that the majority of VERA-funded pollutant reductions target NOx, an ozone precursor, and provide only a small amount of PM10, and consequently PM2.5, emission reductions, as shown in Figure 4.

Figure 4: Annual emission reductions from 2013 through 2019 achieved through VERA-funded projects



Specifically, from 2014 through 2019, 89.9% of total funded emission reductions reduced NOx and only 11.1% PM10. By 2019, the third year after the County started providing OG-ERA fees to the SJVAPCD the percentage of PM10 reductions dwindled to 5.2%.³⁹

IV.C.2 PM10 Emission Reductions Attributable to Fugitive Dust under Voluntary Incentive Programs

The SJVAPCD compiled a list of emission reductions projects funded over a period of 10 years, from August 1, 2010 through August 1, 2020 under its suite of voluntary incentive programs.⁴⁰ The types of projects funded fall into six broad categories: mobile off-road, agricultural irrigation pumps, on-road trucks, locomotives, school buses, and fireplace changeout. Over the ten-year period, funded projects resulted in total lifetime particulate matter (“PM”) reduction of 2,824.01 tons within the San Joaquin Valley Air Basin. (PM in this list is equivalent to PM10.) These include 692 projects in Kern County

³⁹ See Attachment B.

⁴⁰ SJVAPCD, List of Projects Funded 8/01/2010 - 8/01/2020; available at <http://valleyair.org/grants/>.

for a total lifetime PM10 reduction of 456.6 tons. (See Attachment B.) Of these total lifetime PM10 reductions in Kern County, 176.9 tons, or 38.7% total emission reductions,⁴¹ are attributable to the category “Low-Dust Harvester Replacement,” one of the five categories of the funded mobile off-road projects (Agricultural Vehicle Replacement, Engine Repower, Engine Repower and Retrofit, Tractor Trade-up, and Low-Dust Harvester Replacement). Thus, a substantial portion of the funded projects reduce fugitive dust emissions, which largely reduce PM10 larger than 2.5 µm, rather than combustion emissions, which are largely PM2.5.

Further, in 2017, the SJVAPCD funded the Bakersfield Municipal Airport Dust Control Project (C-51117 “Dust Control”) to mitigate 52.31 tons/year PM10.⁴²

I recognize that either of these projects may have been funded under the ISR program rather than the VERA program since it is impossible to tell from either the County’s or the SJVAPCD’s public reporting which program funded these particular projects. I encourage you to investigate this matter with the SJVAPCD.

IV.D The Draft SREIR’s Discussion of Emission Reduction Tracking for PM2.5 and PM10 Is Inadequate

The Draft SREIR argues that PM2.5 emission reductions funded by the OG-ERA to reduce Project emissions cannot and need not be tracked separately:

First, the Draft SREIR, p. 4.3-11, maintains that “because PM2.5 is a subset of PM10, any PM10 emissions necessarily contain PM2.5 emissions. For this reason, it is difficult to separate PM2.5 and PM2.5-10 emissions when creating, implementing, and tracking incentive measures that fund emission reduction projects.” This contention is specious and contradicted by the Draft SREIR itself, which, with Table 4.3-AA, provides the necessary tool to speciate PM2.5 and PM10 emission reductions by the type of emissions source. Keeping track of these calculated PM2.5 and PM10 emission reductions separately then is no more cumbersome than keeping track of any other pollutant reductions.

Second, the Draft SREIR, p. 4.3-11, asserts that “addressing PM2.5 and PM10 emissions jointly is the approach that the SJVAPCD had consistently taken in its attainment plans and SIP [state implementation] strategies for achieving both the PM10 and PM2.5

⁴¹ (PM reductions from Low-Dust Harvester Replacement in Kern County: 176.88 tons PM) / (total PM reductions in Kern County: 456.642 tons PM) = **38.73%**.

⁴² SJVAPCD, 2017 Annual Report, Indirect Source Review Program Reporting Period: July 1, 2016 to June 30, 2017, pp. 7 and 15; available at: <http://www.valleyair.org/ISR/Documents/2017-ISR-Annual-Report.pdf>. Note: The accompanying Appendix A to the ISR Report, which provides a list of emission reduction projects funded, does not distinguish between the ISR and VERA programs.

ambient air quality standards and for achieving emission reductions of both pollutants, particularly through incentive measures like the OG-ERA....,” pointing out that CARB accepted this approach when it approved the SJVAPCD’s 2018 PM2.5 Plan. This line of reasoning neglects to recognize that the SJVAPCD’s strategy has yet to achieve its stated goal, *i.e.*, to bring the San Joaquin Valley Air Basin into attainment of the state and federal PM2.5 ambient air quality standards, despite more than a decade of funding emission reduction projects under the ISR and VERA programs. Therefore, the mere consistency with the SJVAPCD’s strategy does not meet the requirements of CEQA.

Third, the Draft SREIR, p. 4.3-120, emphasizes that the County “expect[s] that the OG-ERA will achieve PM2.5 reductions from the emission reduction projects funded by the OG-ERA to mitigate for Project emissions.” Mere expectation is inadequate to ensure enforceability of the proposed mitigation, which the court recognized as the main failure of mitigation measure MM 4.3-8.

V. The Draft SREIR Must Require All Feasible Mitigation Measures to Reduce Significant Impacts

Project Emissions

The Draft SREIR’s approach to mitigating the substantial emissions resulting from construction and operation of the Project over its 21-year life is severely deficient. The Draft SREIR proposes four mitigation measures intended to address emissions directly at the Project sites, broadly summarized as follows:

- MM 4.3-1:** Obtain stationary source permits from the SJVAPCD to comply with District Rule 2201.
- MM 4.3-2:** Implement a Fugitive Dust Control Plan in compliance with the SJVAPCD’s fugitive dust suppression regulations.
- MM 4.3-3:** Require off-road construction equipment with 50 horsepower or more to comply at a minimum with the Tier 3 California Emission Standards for Off-road Compression-Ignition Engines; turn off engines when not in use and restrict idling to five minutes; and maintain engines in good operation condition and proper tune
- MM 4.3-4:** Require: on-road heavy-duty diesel haul vehicles with 2007 or older engines to comply with CARB’s retrofit requirements; meet all applicable emission standards, and properly tune and maintain vehicles

These mitigation measures are inadequate.

First, the Draft SREIR makes no attempt at discussing how the mitigation measures addressing construction emissions, MM 4.3-2 through MM 4.3-4 would be practically enforced for the thousands of individual projects that may be constructed each year. Typically, EIRs require a construction manager who oversees implementation of these measures, which is not required here. However, this requirement may not be practical here, at least for smaller projects. In sum, these measures are not enforceable.

Second, mitigation measure MM 4.3-2 requires development of a Fugitive Dust Control Plan in compliance with the SJVAPCD's fugitive dust suppression regulations. Numerous additional and more stringent mitigation measures exist and are feasible. For example, the County's Recirculated Draft EIR for the 99 Houghton Industrial Park Project, a much smaller project, required substantially more stringent fugitive dust mitigation than proposed here.⁴³

Third, mitigation measures MM 4.3-3 and MM 4.3-4 require combustion emissions standards that are available at the time the Draft SREIR was written, effectively cementing the specific requirements in time for the entire 21-year lifetime of the Project. This is not acceptable. The mitigation measures must be rewritten to require the most stringent emissions standards at the time individual projects would be permitted by the County.

Fourth, additional feasible mitigation for on-and off-road combustion emissions exists now and must be required. In fact, the 2015 Final EIR, p. 7-212, (Draft SREIR, Volume 5) discusses additional measures that would reduce construction emissions, which were identified by applicants for the Project, including voluntary early replacement of engines with low emission engine technology (Tier 4f engines) and (2) increasing carpooling and vanpooling for oil and gas employees above levels required by applicable regulations. These and other mitigation measures are feasible now and must be required by the Draft SREIR instead of making them part of the OG-ERA, as discussed by the 2015 Final EIR.

Fifth, the Draft EIR fails to include adequate on-site mitigation for emissions associated with the operational phase of the Project not offset by District Rule 2201, including:

- Prohibit new wells with combustion engines if the electric grid is within 1,500 feet.
- Use photovoltaic solar energy for production equipment.
- Install remote well surveillance systems to reduce inspection travel.

⁴³ County of Kern, Recirculated Draft Environmental Impact Report, 99 Houghton Industrial Park Project, SCH# 2009051005, October 2019; available at: https://psbweb.co.kern.ca.us/UtilityPages/Planning/EIRS/99_Houghton/DEIR/99_Houghton_RDEIR_Vol%201.pdf.

I suggest that the County research the suite of mitigation measures it required for other projects and have been found feasible by other lead agencies and require them here or discuss why there are not feasible.

Further, the Draft SREIR is severely deficient in that it fails to provide estimates of mitigated emissions to demonstrate the effectiveness of the proposed mitigation measures in reducing Project emissions. Instead, the Draft SREIR simply addresses all emissions from construction and operation that are not required to be offset under District Rule 2201 in its calculation of fees to be collected under the OG-ERA (mitigation measure MM 4.3-8). This is not acceptable. It is far more difficult to achieve emission reductions after the fact by funding projects than it is to avoid these emissions in the first place.

In sum, all feasible onsite project-specific mitigation measures should be required by the County rather than relying on the current fee-based approach to emission reductions.

Valley Fever

The Draft SREIR requires only a very abbreviated mitigation measures, MM 4.36, to address Valley Fever. This measure can be substantially improved by incorporating the more detailed measures described in the County's Recirculated Draft EIR for the 99 Houghton Industrial Park Project.

VI. The Draft SREIR Underestimates PM10 and PM2.5 Emissions

I previously commented on the failure of the 2015 Final EIR to account for fugitive dust emissions from wind erosion, which include both PM10 and PM2.5. The Draft SREIR makes no attempt to correct this substantial error. My comments are reiterated and amended below.

The Project area experiences frequent high-wind events that can cause substantial emissions of fugitive dust particulate matter, particularly from disturbed surfaces.⁴⁴ This is vividly illustrated by YouTube videos of a sandstorm in Inyokern, which shows the comparative impact of these storms on a graded and undisturbed area.⁴⁵ The photos below show the effects of typical dust storms in the Project area.

⁴⁴ Kern County Soil Conservation Committee, Dust Storms, April 1949; available at: http://ucanr.edu/sites/UCCE_LR/files/180706.pdf. (See 2015 Pless Comments, *op. cit.*, Exhibit 1.)

⁴⁵ YouTube, 7 Dec 2013 Sandstorm in Inyokern; available at: <https://www.youtube.com/watch?v=q-NFAmKHL88>; YouTube, 7 Feb 2014 Dust Storm at Black Mountain Estates, Inyokern, Kern County, CA; available at: <https://www.youtube.com/watch?v=yZLv9otHs8k>.



From: Ruth Brown, The Bakersfield Californian, Morning Dust Storm in Kern Delays Traffic, April 30, 2014;
<http://www.bakersfield.com/news/2014/04/30/morning-dust-storm-in-kern-delays-traffic.html>
(See 2015 Pless Comments, *op. cit.*, Exhibit 2)



The Bakersfield Californian, *op. cit.*

Much of the area that would be disturbed by Project activities consists of undeveloped land. Grading would increase the surface material available for entrainment and would greatly increase the potential for windblown dust. Wind erosion of the graded surfaces can be expected to be substantial, hindering the progress of the San Joaquin Valley Air Basin towards compliance with state ambient air quality standard for PM₁₀ and the state and federal ambient air quality standards for PM_{2.5}.

The CalEEMod model used to estimate Project construction emissions⁴⁶ calculates fugitive dust emissions from material handling, paved roads, and grading, but does not estimate particulate matter emissions due to wind erosion of the graded areas. The technical support document for the model warns:

Wind-blown fugitive dust is not calculated in CalEEMod because of the number of input parameters required such as soil type, moisture content, wind speed, etc. This limitation could result in underestimated fugitive dust emissions if high wind and loose soil are substantial characteristics for a given land use/construction scenario.⁴⁷

In sum, the Draft SREIR substantially underestimates PM₁₀ and PM_{2.5} emissions from Project construction PM₁₀ and PM_{2.5} because it fails to include estimates of wind erosion of graded surfaces. These emissions are thus also not addressed by the Draft SREIR EIR's proposed mitigation measures, including the mitigation fees required under mitigation measure 4.3-8.

Windblown fugitive dust emissions can be estimated using standard methods, for example, based on methodology developed by Maricopa County Air Quality Department ("MCAQD") in Arizona, another area whose air quality is suffering from the effects of wind erosion.⁴⁸ I estimated emissions of fugitive windblown dust during Project construction based on emission factors for disturbed soil established by MCAQD, the disturbed Project acreage, and information about the amount of time during a year certain wind speeds are exceeded in the area, as shown in Table 6.

⁴⁶ See Draft SREIR, p. 4.3-85. ("On-road and off-road emission factors associated with construction were estimated using two models: EMFAC2011 for on-road emission factors and OFFROAD2011 for off-road emission factors. Total emissions were calculated using the CalEEMod model.")

⁴⁷ CalEEMod, Technical Paper, July 2011, p. 4; available at: <http://www.aqmd.gov/docs/default-source/caleemod/techpaper.pdf?sfvrsn=2> (See 2015 Pless Comments, *op. cit.*, Exhibit 3).

⁴⁸ Maricopa County Air Quality Department, 2008 PM₁₀ Periodic Emissions Inventory for the Maricopa County, Arizona, Nonattainment Area, Revised June 2011, Appendix 4. Windblown Dust Emission Estimation Methodology. (See 2015 Pless Comments, *op. cit.*, Exhibit 4).

Table 6: Fugitive dust PM10 emissions due to wind erosion from disturbed soil

Wind speed bin (mph)	12-15	15-20	20-25	25-30	30-35	
Stable soil PM emission factor^a (ton/acre/5-min)	1.10E-05	2.93E-05	7.68E-05	1.64E-04	3.10E-04	
Disturbed soil PM emission factor^a (ton/acre/5-min)	5.44E-05	1.69E-04	5.14E-04	1.24E-03	2.57E-03	
Percent of time in wind speed bin^b (%/year)	11.5%	6.5%	2.0%	0.6%	0.1%	
Count of 3- or 5-minute periods/year in wind speed bin (#/year)^c	175,200	105,120	105,120	105,120	105,120	
PM10 emissions increase (tons/year)						Total
350 acres disturbed/151,690 acres stable	3.83	4.18	4.02	2.97	1.04	16.03
500 acres disturbed/151,540 acres stable	5.47	5.97	5.74	4.24	1.48	22.90
1,000 acres disturbed/151,040 acres stable	10.93	11.93	11.49	8.48	2.97	45.80
PM2.5 emissions increase (tons/year)^e						Total
350 acres disturbed/151,690 acres stable	0.57	0.63	0.60	0.45	0.16	2.40
500 acres disturbed/151,540 acres stable	0.82	0.89	0.86	0.64	0.22	3.44
1,000 acres disturbed/151,040 acres stable	1.64	1.79	1.72	1.27	0.45	6.87

a MCAQD, 2008 PM10 Periodic Emissions Inventory, *op. cit.*

b From: Western Regional Climate Center – Desert Research Institute, Wind Speeds for Kettleman Hills, CA, for November 1, 1988 through November 1, 2015; available at: <http://www.raws.dri.edu/cgi-bin/rawMAIN.pl?caCKET> (See 2015 Pless Comments, *op. cit.*, Exhibit 5)

c Count of 3- or 5-minute periods/year in wind speed bin = (365 days/year) × (24 hours/day) × (60 minutes/hour) / (3 or 5)

d PM10 Emissions = {PM10 emissions from stable soil} - {PM10 emissions from disturbed soil} - {PM10 emissions from stable soil for total Project area} = {(stable soil acreage) × (count of 3- or 5-minute periods/year in wind speed bin) × (% of time in wind speed bin) × (wind speed bin stable soil PM emission factor) × (PM10/PM: 0.0125)} + {(disturbed soil acreage) × (count of 3- or 5-minute periods/year in wind speed bin) × (% of time in wind speed bin) × (wind speed bin disturbed soil PM emission factor) × (PM10/PM: 0.0125)} - {(1402 acres) × (count of 3- or 5-minute periods/year in wind speed bin) × (% of time in wind speed bin) × (wind speed bin stable soil PM emission factor) × (PM10/PM: 0.0125)}

e PM2.5 emissions increase = PM10 emissions increase × (0.15 PM2.5/PM10 (see MCAQD, *op. cit.*, p. A4-21))

Table 6 shows that windblown PM10 emissions from disturbed soil would exceed the SJVAPCD's 15-ton/year threshold of significance for this pollutant if as few as 350 acres are disturbed throughout the year (16.03 tons/year). Clearly, Project construction would result in much larger disturbed areas throughout much of the 21-year Project period. Thus, the Final EIR substantially underestimates PM10 and PM2.5 emissions from Project construction. Emissions from wind erosion must be accounted for and mitigated (accounted for in mitigation measure 4.3-8.).

VII. New Information Regarding Greenhouse Gas Emissions and Global Climate Change Has Become Available, Requiring Revision and Recirculation of the Draft SREIR

The Draft SREIR does not contain an update to Section 4.7 Greenhouse Gas Emissions and Global Climate Change, despite being requested to do so by an alliance of environmental, environmental justice, and local organizations in their comments on the Notice of Preparation for the Draft SREIR:⁴⁹

New information regarding the impacts of climate change has become available. Many studies highlight the major role that fossil fuel production plays in bringing us closer to serious consequences of climate change, including triggering more frequent and severe droughts, forest fires, floods, heatwaves, and other extreme weather. The International Panel on Climate Change published its Fifth Assessment Report in 2019. Other studies have increased our understanding of climate change impacts caused by oil and gas development. The SREIR must include an updated analysis of climate change impacts caused by the addition of tens of thousands of new wells in Kern County.

I concur with the alliance's comments. Specifically, new information contained in the Fifth Assessment Report ("AR5") published by the International Panel on Climate Change ("IPCC") regarding the global warming potentials ("GWPs") of greenhouse gas emissions require a revision of the greenhouse gas emission estimates.

The global warming potential is a relative measure of how much heat a greenhouse gas traps in the atmosphere; it compares the amount of heat trapped by a gas in question to the amount of heat trapped by carbon dioxide ("CO₂") based on a certain time horizon. To calculate CO₂-equivalent emissions from the Project, the 2015 Final EIR relies on the Fourth Assessment Report ("AR4") published by IPCC in 2007.⁵⁰ For methane ("CH₄"), AR4 established a GWP of **25** over a 100-year time horizon. The GWP for methane has been updated with the most recent IPCC report, the Fifth Assessment Report ("AR5"), which was finalized in November 2014. This report incorporates climate-carbon feedback and updates the GWP for methane to **34** over a 100-year time horizon,⁵¹ a 36 percent increase.⁵² Thus, based on the most recent available science, the greenhouse

⁴⁹ Hollin Kretzmann, Center for Biological Diversity, *et. al.*, Letter to Cindy Hoover, Kern County Planning and Natural Resources Department, Re: Notice of Preparation of a Draft Supplemental Recirculated Environmental Impact Report (SCH # 2013081079), May 29, 2020. (See Draft SREIR, Vol. 2, Appx. A.)

⁵⁰ Draft EIR, p. 4.7-2. ("Table 4.7-1 describes GWPs as presented in the 2007 Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4)...")

⁵¹ IPCC, AR5 Climate Change 2013, The Physical Science Basis, Chapter 8: Anthropogenic and Natural Radiative Forcing, Appendix 8.A: Lifetimes, Radiative Efficiencies and Metric Values, Table 8.A.1; http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_ALL_FINAL.pdf.

⁵² (34)/(25) = **1.36**.

gas emission estimates presented in the 2015 Final EIR, and incorporated into the Draft SREIR, are underestimated and not adequately mitigated.

VIII. Conclusions and Recommendation

Based on the above-described analytical and mitigation failures, the Draft SREIR does not provide the requisite information necessary for a decision on the Project. I recommend that the County revise Sections 4.3 Air Quality and 4.7 Greenhouse based on the above discussion.

Please call me at (415) 492-2131 or e-mail at petra.pless@gmail.com if you have any questions about the comments in this letter.

Sincerely,

A handwritten signature in black ink, appearing to read 'Petra Pless', with a stylized flourish above the name.

Petra Pless, D.Env.

PS: Native Excel files supporting Attachment B are available upon request.

0009-151
Cont'd

0009-152

Attachment A

Top 4 Summary: Highest 4 Daily 24-Hour PM10 Averages

at Bakersfield-5558 California Avenue



	2016		2017		2018	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Feb 12	90.9	Dec 15	138.0	Jan 2	136.1
Second High:	Sep 9	79.9	Dec 9	106.7	Nov 16	116.4
Third High:	Nov 8	79.5	Dec 27	94.9	Aug 6	75.0
Fourth High:	Oct 22	71.4	Oct 17	90.9	Feb 1	73.8
California:						
First High:	Feb 12	92.2	Dec 15	143.6	Jan 2	142.0
Second High:	Nov 8	80.6	Dec 9	112.1	Nov 16	119.8
Third High:	Sep 9	78.1	Dec 27	99.5	Feb 1	76.1
Fourth High:	Dec 20	72.2	Oct 17	90.9	Aug 6	73.1
National:						
Estimated # Days > 24-Hour Std:	0.0			0.0		0.0
Measured # Days > 24-Hour Std:	0			0		0
3-Yr Avg Est # Days > 24-Hr Std:	*			0.0		0.0
Annual Average:	41.2			42.6		42.1
3-Year Average:	46			43		42
California:						
Estimated # Days > 24-Hour Std:	121.4			98.7		*
Measured # Days > 24-Hour Std:	21			16		13
Annual Average:	40.9			42.6		*
3-Year Maximum Annual Average:	44			44		43
Year Coverage:	97			98		95

◀ Shift Backward 1 year ▼ Shift Forward ▶

Notes:

Daily PM10 averages and related statistics are available at Bakersfield-5558 California Avenue between 1994 and 2018. Some years in this range may not be represented.

All averages expressed in micrograms per cubic meter.

The national annual average PM10 standard was revoked in December 2006 and is no longer in effect. Statistics related to the revoked standard are shown in *italics* or *italics*.

yellow exceeds a California ambient air quality standard. **orange** exceeds a national ambient air quality standard.

An exceedance of a standard is not necessarily related to a violation of the standard.

All values listed above represent midnight-to-midnight 24-hour averages and may be related to an exceptional event.

State and national statistics may differ for the following reasons:

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

State statistics for 1998 and later are based on local conditions (except for sites in the South Coast Air Basin, where State statistics for 2002 and later are based on local conditions). National statistics are based on standard conditions.

State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

Measurements are usually collected every six days. Measured days counts the days that a measurement was greater than the level of the standard; Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.

3-Year statistics represent the listed year and the 2 years before the listed year.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

***** means there was insufficient data available to determine the value.

Top 4 Summary: Highest 4 Daily 24-Hour PM2.5 Averages

at Bakersfield-5558 California Avenue



	2016		2017		2018	
	Date	24-Hr Average	Date	24-Hr Average	Date	24-Hr Average
National:						
First High:	Dec 21	66.4	Dec 28	101.8	Jan 3	98.5
Second High:	Dec 22	63.6	Dec 31	88.1	Jan 2	97.5
Third High:	Nov 9	55.7	Dec 30	82.9	Nov 19	96.5
Fourth High:	Jan 1	54.6	Dec 10	76.5	Jan 1	93.1
California:						
First High:	Dec 21	66.4	Dec 28	101.8	Jan 3	98.5
Second High:	Dec 22	63.6	Dec 31	88.1	Jan 2	97.5
Third High:	Nov 9	57.4	Dec 30	82.9	Nov 19	96.5
Fourth High:	Jan 1	54.6	Dec 10	76.5	Jan 1	93.1
National:						
Estimated # Days > 24-Hour Std:	25.5			30.2		40.3
Measured # Days > 24-Hour Std:	23			28		36
24-Hour Standard Design Value:	61			59		63
24-Hour Standard 98th Percentile:	47.0			71.8		69.2
2006 Annual Std Design Value:	16.5			15.7		16.1
2013 Annual Std Design Value:	16.5			15.7		16.1
Annual Average:	14.7			15.9		17.6
California:						
Annual Std Designation Value:	19			16		16
Annual Average:	16.0			15.9		15.7
Year Coverage:	90			94		93

◀ Shift Backward 1 year ▼ Shift Forward ▶

Notes:

Daily PM2.5 averages and related statistics are available at Bakersfield-5558 California Avenue between 1999 and 2018. Some years in this range may not be represented.

All averages expressed in micrograms per cubic meter.

yellow exceeds a California ambient air quality standard. orange exceeds a national ambient air quality standard.

An exceedance of a standard is not necessarily related to a violation of the standard.

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

Year Coverage indicates the extent to which available monitoring data represent the time of the year when concentrations are expected to be highest. 0 means that data represent none of the high period; 100 means that data represent the entire high period. A high Year Coverage does not mean that there was sufficient data for annual statistics to be considered valid.

* means there was insufficient data available to determine the value.

Attachment B

Year	Fees Collected			Amount Spent			Total NOx Emissions Reductions Realized			Total PM10 Emissions Reductions Realized		
	ISR	VERA	Total	ISR	VERA	Total	ISR	VERA	Total	ISR	VERA	Total
2007	\$ 13,489,322	\$ -	\$ 13,489,322	\$ (9,549,668)	\$ -	\$ (9,549,668)	824.07	-	824.07	33.71	-	33.71
2008	\$ 10,483,322	\$ -	\$ 10,483,322	\$ (3,125,191)	\$ -	\$ (3,125,191)	251.56	-	251.56	9.09	-	9.09
2009	\$ 1,864,241	\$ 152,073	\$ 2,016,314	\$ (150,816)	\$ (2,199,013)	\$ (2,349,829)	29.22	245.94	275.16	1.08	8.61	9.69
2010	\$ 761,782	\$ (83,779)	\$ 678,003	\$ (241,741)	\$ (165,092)	\$ (406,833)	160.35	19.02	179.37	-	0.35	0.35
2011	\$ 627,921	\$ 672,598	\$ 1,300,519	\$ (1,758,259)	\$ (290,200)	\$ (2,048,459)	1,119.6	47.3	1,166.9	41.4	1.0	42.4
2012	\$ 947,746	\$ 937,509	\$ 1,885,255	\$ (2,187,622)	\$ (802,793)	\$ (2,990,415)	728.4	215.2	943.6	35.1	63.3	98.4
2013	\$ 958,245	\$ 304,616	\$ 1,262,861	\$ (3,868,692)	\$ (382,650)	\$ (4,251,342)	1,231	51	1,282	64	6	70
2014	\$ 3,744,985	\$ 124,459	\$ 3,869,444	\$ (798,528)	\$ (354,391)	\$ (1,152,919)	79	72	151	9	5	14
2015	\$ 2,496,991	\$ 1,311,901	\$ 3,808,892	\$ (3,733,409)	\$ (807,889)	\$ (4,541,298)	466	130	596	26	6	32
2016	\$ 2,031,740	\$ 8,612,006	\$ 10,643,746	\$ (1,258,176)	\$ (1,395,589)	\$ (2,653,765)	141	181	322	7	5	12
2017	\$ 5,223,156	\$ 8,998,493	\$ 14,221,649	\$ (1,131,052)	\$ (3,767,002)	\$ (4,898,054)	120	381	501	6	96	102
2018	\$ 5,468,290	\$ 20,287,656	\$ 25,755,946	\$ (5,793,141)	\$ (9,396,146)	\$ (15,189,287)	602	853	1,455	35	181	216
2019	\$ 8,738,776	\$ 42,915,629	\$ 51,654,405	\$ (4,570,986)	\$ (12,461,331)	\$ (17,032,317)	393	1,220	1,613	23	63	86

Attachment C

I. Cost of Emission Reductions

Between 2014 and 2019, the cost per ton of pollutants (NO_x+PM₁₀) removed under the VERA program has more than doubled from \$4,602 per ton to \$9,713 per ton, as shown in Figure xxx.¹ In the same period, the total cost of emissions reductions funded under the ISR program increased from \$9,074 per ton to \$10,988 per ton, an increase of about 20%.² (Total costs under the combined ISR-VERA program increased from \$6,987 per ton to \$10,025 per ton, an increase of about 40%.³)

Figure xxx: Cost per ton of VERA-funded emission reduction projects 2014–2019

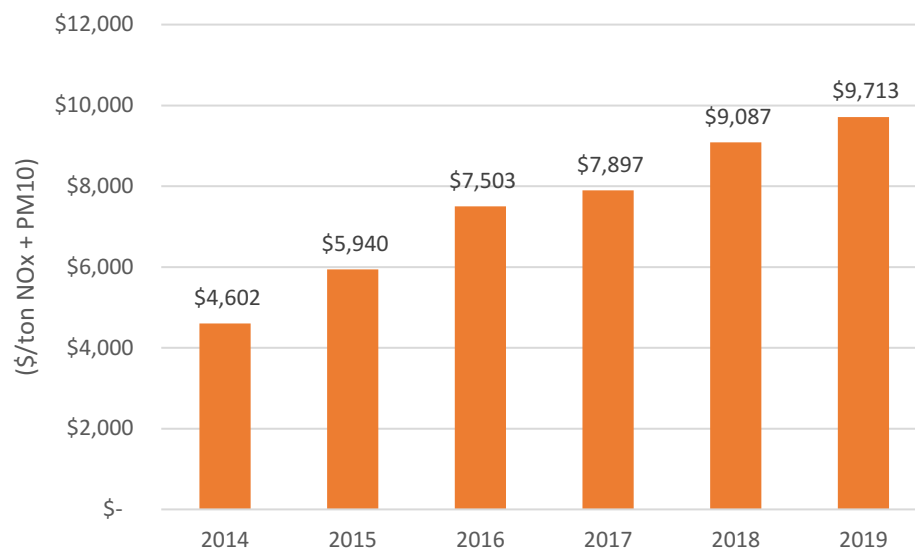


Figure xxx does not include the years before 2013 because the District's ISR Reports for 2011 and 2012 contain substantial errors in the calculation of the cost per ton of emission reductions for VERA-funded projects, as summarized in Table xxx. (The cost per ton values of ISR-funded projects are incorrectly calculated for years 2011 through 2013.) Table xxx summarizes the emission reductions (NO_x+PM₁₀) achieved through VERA-funded projects, the amount spent, and the cost per ton presented by the ISR Reports for 2011 and 2012. In addition, Table xxx shows the revised cost per ton when correctly calculated as: (Amount Spent) / (Achieved NO_x + PM₁₀ Emission Reductions).

¹ $(\$9,713/\text{ton})/(\$4,603/\text{ton}) = 2.11$.

² $(\$10,/\text{ton})/(\$4,602/\text{ton}) = 1.21$.

³ $(\$10,988/\text{ton})/(\$9,074/\text{ton}) = 1.4$.

Table xxx: Cost per ton of achieved emission reductions under VERA program
as presented in 2011 and 2012 ISR Reports and revised

Year	Achieved NOx+PM10 Emission Reductions (ton)	Amount Spent (\$)	Cost per ton in ISR Report (\$/ton)	Revised Cost per ton (\$/ton)
2011	48.3	\$(290,200)	\$10,166	\$6,008
2012	278.5	\$(802,793)	\$5,329	\$2,883

II. Discrepancies in ISR/VERA Reports

The ISR Report for 2014, Table 1: ISR-VERA Fiscal Summary," assumes an incorrect "Beginning Fund Balance" for ISR and Total, which appears to be a transcription error as shown in Table xxx and discussed below.

Table xxx: ISR-VERA Fiscal Summary for 2014 and 2013

ISR-VERA Fiscal Summary	ISR	2014 VERA	Total	ISR	2013 VERA	Total
Beginning Fund Balance	\$848,957	\$1,067,094	\$1,916,051	\$6,799,402	\$1,145,128	\$7,944,530
Offsite Mitigation Fees Collected ^a	\$3,744,985	\$124,459	\$3,869,444	\$958,245	\$304,616	\$1,262,861
Offsite Mitigation Fees Refunded ^a	\$0	\$0	\$0	\$0	\$0	\$0
Offsite Mitigation Fees Available after Refunds ^{a,b}	\$3,744,985	\$124,459	\$3,869,444	\$958,245	\$304,616	\$1,262,861
Available Balance ^c	\$4,593,942	\$1,191,553	\$5,785,495	\$7,757,647	\$1,449,744	\$9,207,391
Amount Spent	\$(798,528)	\$(354,391)	\$(1,152,919)	\$(3,868,692)	\$(382,650)	\$(4,251,342)
Ending Fund Balance ^d	\$3,795,414	\$837,162	\$4,632,576	\$3,888,955	\$1,067,094	\$4,956,049
Encumbered Amount	\$(2,595,559)	\$(759,389)	\$(3,354,948)	\$(3,039,998)	\$0	\$(3,039,998)
Ending Unencumbered Balance	\$1,199,855	\$77,773	\$1,277,628	\$848,957	\$1,067,094	\$1,916,051
Ending Fund Balance not transferred from 2013 to 2014	\$3,039,998	\$0	\$3,039,998			

Note: Uncolored fields are from 2013 and 2014 ISR Reports; fields in grey are calculated

a Later ISR Reports change the labels to "Amount Received" and "Amount Refunded" and eliminate the "... after Refunds" field

b (Offsite Mitigation Fees Available after Refunds) = (Offsite Mitigation Fees Collected) + (Offsite Mitigation Fees Refunded)

c (Available Balance) = (Beginning Fund Balance) + (Offsite Mitigation Fees Available after Refunds)

d (Ending Fund Balance) = (Available Balance) + (Amount Spent)

As shown in Table xxx, the 2014 ISR Report incorrectly transcribes the "Ending Unencumbered Balance" from 2013 to the "Beginning Fund Balance" for 2014 rather than transcribing the "Ending Fund Balance" from 2013. (The "Ending Fund Balance" is calculated as: the sum of (Beginning Fund Balance) + (Offsite Mitigation Fees Available after Refunds) + (Amount Spent).) The error appears to stem from the fact that ISR Reports prior to 2012 did not specify the amounts of "encumbered" expenditures, *i.e.*, amounts that had been committed to projects but had not resulted in emission reductions in that year (thus, encumbered amounts are accounted for in the following year) and therefore the "Ending Fund Balance" was the same as the "Ending Unencumbered Balance" and was simply called "Ending Balance." When the 2012 ISR Report introduced the amount of "encumbered" expenditures, it failed to provide separate amounts for "Ending

Fund Balance” and “Ending Unencumbered Balance” and incorrectly retained the label “Ending Balance” for what was now the “Ending Unencumbered Balance.” While the 2014 ISR Report appeared to recognize this problem and eliminated the label “Ending Balance,” instead specifying both “Ending Fund Balance” and “Ending Unencumbered Balance” for that year, it failed to correctly transcribe the “Ending Fund Balance” from 2013. As shown, this transcription error in effect “lost” about \$3 million from the ISR program funds. This error was not corrected in any of the subsequent ISR Reports and the discrepancy is thus carried forward into the year 2019.

Addendum B

Gray Sky Solutions

MEMORANDUM

To: Colin O'Brien, Earthjustice

From: Dr. H. Andrew Gray, Gray Sky Solutions

Date: September 15, 2020

Re: Comments Regarding ECS's Cumulative Health Risk Assessment (HRA) for the Kern County Final EIR – Proposed Drilling and Oil and Gas Operations

Environmental Compliance Solutions (ECS), Santa Monica, CA

Cumulative Health Risk Assessment (October 2015)

HARP2 consists of:

- 1) Emissions Estimations of Hazardous Air Pollutants;
- 2) Exposure Assessments;
- 3) Dose-response Assessments; and
- 4) Potential Health Risk Quantification

The primary TACs of concern for this project were diesel exhaust (DPM) associated with construction equipment and drill rigs. No emission calculations are presented in the Cumulative HRA report for any TAC other than DPM; examination of the HARP2 modeling files shows that modeling was performed for cancer risk for 8 other TACs, including benzene (in which the maximum impact was a risk of 0.0046/million). The maximum estimated risk for DPM was computed to be 9.3 per million (approximately half of the CEQA threshold of 20/million).

It was assumed that all receptor locations contain *sensitive* receptors, subject to the 20/million threshold risk value.

All particulate matter 10 microns in diameter and smaller (PM10) was considered to be toxic DPM (this is considered by ECS to be a conservative assumption, however a large majority of the PM emissions are, in fact, inhalable DPM).

0009-153

Emission Calculations

In Table 2 of the Cumulative HRA it is stated that a 500 hp Tier 2 diesel engine is assumed to operate every other year for **9 days, 30 minutes per day**, annualized. Annualizing emissions could significantly underestimate exposure impacts if the (intermittent) emissions occur during particularly low dispersion events. (It would be better to model maximum 24-hour emission rates.) Emissions were estimated for seven phases of operation in 2017.

In Appendix A of the Cumulative HRA, ECS presents tables of off-road mobile source PM10 emissions for 2017 for 7 phases of construction for a 13,000' well. Adding up the emissions from all equipment and all 7 phases results in total PM10 emissions of **1,143.76 lb/well**, with the overwhelming majority coming from well drilling (884.67 lb/r) and well completion (245.25 lb/yr). These data were apparently provided to ECS by Vector Environmental. Table 2 of the Cumulative HRA report shows annualized DPM emissions in 2017 (also provided by Vector Environmental) of 784.32 lb/yr for drilling and 18.24 lb/yr for rework (which do NOT appear to agree with the Appendix A tables). It is not clear how the Appendix A (or Table 2) emission data were used in the HARP2 modeling exercise. Each of the 48 modeled wells (located in concentric circles) were modeled in AERMOD using unit emissions, and the resulting concentrations were scaled (during HARP2 calculations) by either 17.29 lb/yr (for each of the wells labeled H, O, and Q) or 16.92 lb/yr (for each of the wells labeled E). The emissions in Appendix A are either 66.2 or 67.6 times the modeled emission values for each of the 48 wells. There is no information in the HRA report that clearly explains how the Appendix A emissions data were used, nor how the modeled emission rates (17.29 lb/yr or 16.92 lb/yr) were obtained.

[Multiplying the 1,143.76 lb/well in 2017 by 48 wells and then dividing by a 70 year exposure period would result in 784.29 lb/yr, which is close to the Table 2 drilling value of 784.32 lb/yr (but multiplying the drilling value from Appendix A, 884.67 lb/yr, by 48 wells, and then dividing by 70 years results in 606.6 lb/yr). Dividing the 1,143.76 lb/well by 70 year (exposure) would result in 16.3 lb/well-yr, which is similar (but not equal) to the 17.29 and 16.92 lb/yr for each modeled well that was applied in the HARP2 analysis.]

Exposure Assessment

The modeled emission rate (1 g/s) is multiplied by the *worst case* potential emission rate for each substance to obtain ground level concentrations. However, it is not *worst case* if emissions are annualized.

They used the AERMOD dispersion model (**v14134**), with a rural setting for all sources. Five years of meteorological data required for AERMOD was obtained from the SJVAPCD. (The report indicates that Wasco met station data were used; the reference

list indicates that Bakersfield Station 23155 data were used; Wasco is about 40 km NW of Bakersfield.) The report states that "For the cumulative analysis, the Shafter area was utilized" (the modeled sources and receptors are located to the northeast of Shafter, however only the elevation data were actually utilized). Shafter (very flat) is about 27 km WNW of Bakersfield.

Modeled source elevations were between 105.6 m and 113.0 m; the 9 receptors were all at 109.1 m elevation.

HARP **Version 15197** was used for the Cumulative HRA.

Each of the 48 point sources that were modeled using AERMOD had source characteristics defined as part of the model input. Examination of the AERMOD input file shows that (in addition to the source locations and ground level elevations), the point source emissions were all emitted from a stack height of 2.85 m; the stack temperature was 761.9K (equivalent to 488.75C, or 912F); stack diameter was 0.18 m (7.1 inches); and the exit velocity was 71.23 m/s (or 159.3 mph). It is unclear why (or whether) the diesel equipment would emit PM at such a high temperature, and at that extremely high exit velocity (159 mph). These very high temperatures and extremely high exit velocities will cause the model to compute a very high plume rise which will result in low PM concentrations in the vicinity of such a stack. In fact, the AERMOD model produced warning messages for each of the exit velocities, indicating that the **"input parameter may be out-of-range"** for the exit velocities that were input to the model.

The AERMOD model computed concentrations for 43,824 hours during the 5 years of meteorological data that were input to the model (2007 through 2011). During this 5-yr period, there were 8,383 hours (**19%** of the total modeled hours) with calm winds identified (either very low wind speed, and/or non-resolved wind direction), which are eliminated from the modeling. In 2010, a significant improvement was made to the AERMET modeling system to remove a large majority of these calm wind conditions, by using the AERMINUTE preprocessing program with ASOS 1-minute wind data. The AERMINUTE User's Guide states that:

"Surface meteorological data collected by the National Weather Service (NWS) and Federal Aviation Administration (FAA) are often used as the source of input meteorological data for AERMOD (EPA, 2010a). A potential concern related to the use of NWS meteorological data for dispersion modeling is the often high incidence of calms and variable wind conditions reported for the Automated Surface Observing Stations (ASOS) in use at most NWS stations since the mid-1990's. In the METAR coding used to report surface observations beginning July 1996, a calm wind is defined as a wind speed less than 3 knots and is assigned a value of 0 knots. The METAR code also introduced the variable wind observation that may include wind speeds up to 6 knots, but the wind direction is reported

as missing, if the wind direction varies more than 60 degrees during the 2-minute averaging period for the observation. The AERMOD model currently cannot simulate dispersion under calm or missing wind conditions. To reduce the number of calms and missing winds in the surface data, archived 1-minute winds for the ASOS stations can be used to calculate hourly average wind speed and directions, which are used to supplement the standard archive of hourly observed winds processed in AERMET (EPA, 2010b)."

The use of AERMINUTE is highly recommended by EPA for use with the AERMET meteorological preprocessing program when creating data for input to AERMOD (ASOS data are available for Bakersfield). The result of not using AERMINUTE is that the many calm hours will not be modeled, resulting a much lower concentration impact.

Dose-response

The cancer potency factor determines the probability of developing cancer.

Exposure pathways included were direct inhalation, dermal absorption (skin) ingestion, soil ingestion, and mother's milk ingestion. DPM was only used for the inhalation pathway (to estimate cancer risk).

The CEQA significance threshold for potential health risk is a cancer risk equal to or less than **20 in one million**.

Health Risk Assessment

Results of the cumulative modeling study indicate results of **9.3 in one million** potential cancer risk.

Additional Observations

The following observations were made upon further examination of the AERMOD and HARP2 modeling files (Appendices B and C of the Cumulative HRA):

On page 3 of the Cumulative HRA, it is stated that:

"This HRA assumes that up to forty-eight (48) individual 13,000' wells would be drilled in concentric circles around a sensitive receptor. Twelve wells (12) would be **1/8th of one mile** away from the school, 12 additional wells would be **1/4th of one mile** away, 12 more wells would be **3/4th of one mile** away and 12 more would be **one mile** away."

The modeled sources are located in four concentric circles, as shown in the figure below. There are 9 receptors located in a square (3x3), located 20 m apart, shown in

dark green and black (center point) in the figure. The wells in the two center circles are NOT evenly spaced around the circle, and the closest sources (wells) are located from 0.18 mi to 0.22 mi from the closest receptor (somewhat closer than 1/4 mi, but **NOT 1/8 mile**). The second ring of sources (wells) are located from 0.31 to 0.34 mi from the closest receptor (roughly 1/3 mile, **NOT 1/4 mile**). The third ring of sources are located between 0.48 and 0.49 mi from the closest receptors (slightly less than 1/2 mile, but **NOT 3/4 mile**). The outermost ring of receptors are 0.98 to 0.99 mi from the closest receptor (or 0.99 to 1.00 mi to the center receptor point). These actual distances clearly **DO NOT MATCH** the distances stated in the ECS report.

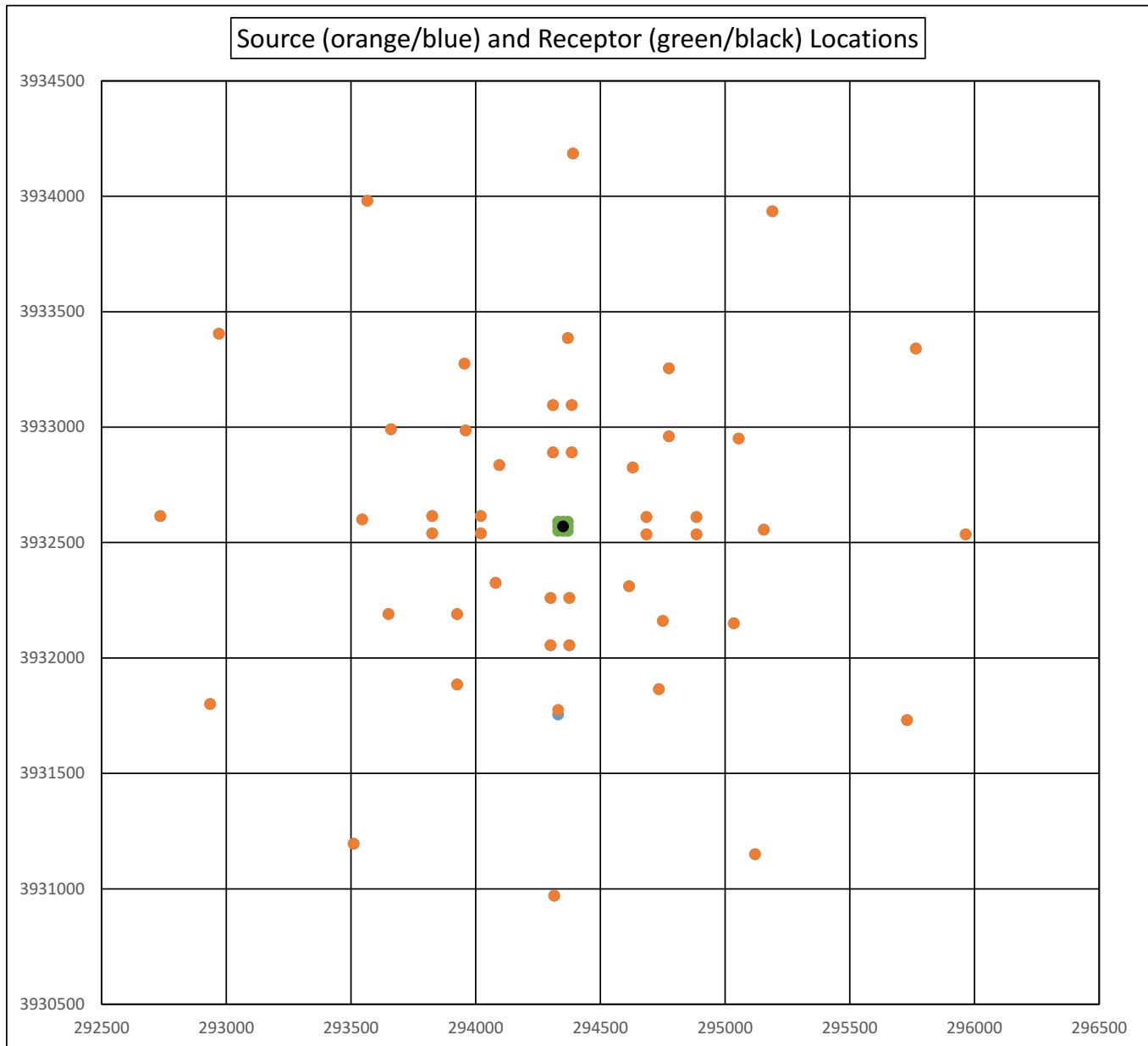


Figure 1. Location of Modeled Sources and Receptors

The sources are defined in the AERMOD model as both a set of 48 point sources and a set of 48 10m x 10m area sources with the SW locations at the same locations as the point sources, with one exception. Point source H180 is located at (294330, 3931755), but the corresponding area source's location, SH180, is at (294330, 3931775), which is 20m north of the point source. The point sources are shown in blue in the figure, although they are covered up (with the one exception) by the area sources (shown in orange).

The emissions data (which are input to HARP2 in order to scale the unit emission AERMOD concentrations from the AERMOD model results) **DO NOT** include any DPM emissions from the 48 modeled area sources (the area sources were only used to contribute emissions of the other 8 TAC species). DPM was only emitted from the 48 modeled point source wells, for which the annual emissions are:

- 17.29 lb/yr for each of the 12 O sources, one mile distance wells
- 17.29 lb/yr for each of the 12 H sources, which are approx. 1/2 mile distance wells (not 3/4 mi)
- 17.29 lb/yr for each of the 12 Q sources, which are supposed to be 1/4 mile distance wells (but are actually located 0.31-0.34 mi)
- 16.92 lb/yr for each of the 12 E sources, which are supposed to be 1/8 mile wells (but are actually located 0.18-0.22 mi)

It is not clear why the modeled E sources have lower emissions than the O, H, and Q sources (16.92 lb/yr vs. 17.29 lb/yr).

I scaled the modeled annual concentrations at the peak receptor location (294660, 3932550) for each of the 48 point source wells by the DPM emissions for each source (lb/yr, converted to g/s) and the sum was **0.00964 $\mu\text{g}/\text{m}^3$** , which (almost) matches the HARP2 computed concentration of 0.009463 $\mu\text{g}/\text{m}^3$, which was used to estimate the inhalation risk probability (9.33/million). I did the same for the modeled max 1-hr concentrations, using the maximum 1-hr emissions (emissions for all 48 sources were 2.22 lb/hr), which summed to 462.506 $\mu\text{g}/\text{m}^3$, which (closely) matches the non-cancer (acute) risk concentration (at the same receptor location) of 462.504 $\mu\text{g}/\text{m}^3$, as shown in the HARP2 output.

Modeling the emission sources in this pattern (i.e., using rings of sources that start at approximately 0.2 mi rather than 0.125 miles as they claimed) will result in much lower concentration impacts at the receptor locations. In addition, the ECS report should clearly describe the methodology that was used to estimate the modeled emission rates from each of the modeled wells.

0009-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0009-2

The comment requests an extension of the public comment period of the SREIR (August 2020) beyond the 45-day statutory minimum required under CEQA. The comment states that such an extension will provide the community (including Spanish-speaking residents) with the opportunity to provide meaningful input in this process, particularly in light of the COVID-19 pandemic.

Please see Responses to Comments 0007-2 and 0007-4 and Global Response (GR) 3 – Public Process. Separate 45-day public comment periods have been provided for the SREIR (August 2020) and SREIR (October 2020), in addition to the May 13, 2020, scoping meeting on the SREIR (August 2020) and public workshops on August 17, 2020, and November 10, 2020. Although the public workshops were not required under CEQA or meetings subject to the Ralph M. Brown Act (Government Code Sec. 54950) (Brown Act), they were conducted virtually via teleconference to allow the public to participate and submit comments on the SREIR amid the COVID-19 pandemic and social distancing recommendations. Spanish translation services at the virtual scoping meeting and the public workshops allowed Spanish-speaking residents to view the meeting in closed captioning and submit written comments in Spanish that were translated into English for the County staff's consideration. In light of the steps taken above, the public has been afforded ample opportunities to review and submit written comments on the SREIR (August 2020 and October 2020), particularly in light of the COVID-19 pandemic.

0009-3

The comment states that the SREIR (August 2020) neglects to analyze or mitigate site-specific impacts and that the Project would deprive community members of future notice and opportunity to comment on site-specific permits. The comment also states that the County should adopt measures that improve health and safety for local communities.

Please see Response to Comment 0007-7. The comment is correct that the Project would facilitate oil and gas development through a streamlined approval process that, in many cases, will authorize new development without additional environmental review beyond the 2015 FEIR and SREIR. See 2015 FEIR, Vol. 3, at 7-95. However, the Project and accompanying mitigation measures require implementation of dozens of new measures to protect human health and the environment. The mitigation measures are designed to cover the entirety of Project impacts, incorporating conservative assumptions and requirements that would not otherwise be available through well-by-well or individualized CEQA review. The 2015 FEIR explains that foregoing site-specific, individualized CEQA review for individual well permits is not a "shortcut" around environmental review. Rather, the Project significantly increases the County's oversight over oil and gas activities that were traditionally allowed "by right" and attaches conservative and protective mitigation measures for all applicants. See 2015 FEIR, Vol. 3, at 7-95. As further noted in Response to Comment 0007-7, Project impact analyses were based on conservative assumptions, and applicants under the Project would be required to mitigate the "worst case" impacts even if individual wells would not cause or contribute to every impact analyzed under the 2015 FEIR and the SREIR. See 2015 FEIR, Vol. 3, at 7-98. For these reasons, the 2015 FEIR and the SREIR contain sufficient discussion of how the streamlined approval processes under the Project are more conservative and protective of the environment than the individualized, site-specific review recommended in the comment.

0009-4

The comment states that research shows that close proximity to oil and gas wells results in elevated risk of various health effects.

A full discussion of the research describing the potential health effects of proximity to oil and gas wells has been incorporated into the Air Quality section of the SREIR (October 2020), Vol. 1, at 4.3-28–41 to provide full public disclosure of the Project's potential impacts on the environment. This discussion includes a summary of numerous reports regarding potential health impacts from oil and gas operations, including those referenced in the comment. The SREIR explains that the existing air quality in the Project Area, including the San Joaquin Valley, is in nonattainment for federal standards for ozone and PM_{2.5}. See SREIR (October 2020), Vol. 1, at 4.3-4–7. The SREIR also explains and discusses the air quality plans applicable to the

Project Area to help reach attainment. See SREIR (October 2020), Vol. 1, at 4.3-67–70. MM 4.3-8 also requires emissions of designated criteria air pollutants to be fully offset by funding emission reduction projects in the air basin, allowing the Valley to continue to work towards attainment of all state and federal air quality standards.

The comment also states that research shows that exposure to higher amounts of air pollution increases vulnerability to COVID-19 and that people of color are more likely to live near oil wells and more likely to get sick or die from COVID-19. The SREIR (August 2020) contains a background discussion of COVID-19 and cites the Wu study referenced in the comment as showing that a small increase in long-term exposure to PM_{2.5} has been found to lead to an increase in the death rate of COVID-19. See SREIR (August 2020), Vol. 1, at 4.3-27–28. This discussion has been updated in the SREIR, given the September 18, 2020, update to the Harvard University COVID-19 and PM_{2.5} research. See SREIR (October 2020), Vol. 1, at 4.3-43–44. The SREIR explains that long-term exposure to PM_{2.5} emissions may add to potential susceptibility to COVID-19 and that onsite workers and residents near Project activities potentially could be exposed to increased levels of PM_{2.5} from Project activities, as those emissions are described under Impact 4.3-2. See SREIR (October 2020), Vol. 1, at 4.3-155–156. The SREIR also states that PM_{2.5} emissions from diesel combustion during construction and operation of the proposed Project could increase susceptibility to COVID-19. The SREIR states that, although PM_{2.5} emissions from Project implementation will be reduced as much as feasible with implementation of MM 4.3-1 through MM 4.3-4 and MM 4.3-8, this impact cannot be mitigated to a level of less than significant as there currently are serious challenges to distribution of vaccines for COVID-19 in California. The SREIR finds this impact significant and unavoidable even with all feasible mitigation.

The SREIR also explains that, as of June 23, 2020, Kern County had 4,049 cases of COVID-19 with 60 deaths out of 900,202 residents. Over 64 percent of County residents who have COVID-19 are Hispanic, while 13 percent are White, 13 percent are unknown, 3 percent are Black, 3 percent are Asian, and 1 percent are other. See SREIR (August 2020), Vol. 1, at 4.3-28. This information has been updated in the SREIR (October 2020) to reflect more recent data on COVID-19 infections, which show that as of October 2, 2020, Kern County had 32,184 cases of COVID-19 with 371 deaths out of 900,202 residents. Fifty-five percent of County residents who have had COVID-19 are Hispanic, while 22 percent are unknown, 12 percent are White, 5 percent are other, 4 percent are Black, and 2 percent are Asian. See SREIR (October 2020), Vol. 1, at 4.3-43–44. The SREIR (October 2020) now also includes references to the articles cited by the comment regarding health risk in relation to race. See SREIR (October 2020), Vol. 1, at 4.3-43.

0009-5

The comment states that the Ordinance would increase toxic air pollution and exacerbate existing health harms by making it quicker and easier for new drilling to commence.

Please see Response to Comment 0009-4 regarding the impacts of the Project in relation to air quality in Kern County. The comment also states that the Project would allow an increase in use of domestic or irrigation quality water without mitigation. Please see Responses to Comments 0009-34 through 0009-40, and 0009-42 through 0009-47, regarding the impacts of the Project in relation to water supply in the Project Area.

The comment also states that a 2,500-foot setback should be instituted to protect sensitive receptors from nearby drilling. Please see Responses to Comments 0009-57 through 0009-89.

0009-6

The comment requests that decisionmakers reject the SREIR (August 2020) as an inadequate environmental review document and recirculate and redraft a new Draft SREIR.

The SREIR (August 2020) was prepared to provide additional environmental review to address the CEQA deficiencies found by the Court of Appeal, Fifth Appellate District. The public process for this project has resulted in two circulations of the Draft SREIR that have been prepared and circulated for public comment. The first circulated SREIR was completed in August 2020 and is referred to as the SREIR (August 2020), and this second circulated SREIR was released in October 2020 and is referred to as the SREIR (October 2020). See SREIR (October 2020), Vol. 1, at 1-2. The SREIR (October 2020) included additional analyses and text modifications to address technical reports submitted in comments on the Draft SREIR (August 2020), a full analysis of a standalone 2,500-foot setback alternative, and additional analyses and mitigation from the lead agency. See SREIR (October 2020), Vol. 1, at 1-8. The SREIR (August 2020 and October 2020) addresses all deficiencies identified by the Court of Appeal and satisfies all applicable requirements for supplemental environmental documents under CEQA.

0009-7

The comment states that the 45-day public comment period on the SREIR (August 2020) was insufficient to allow for meaningful public participation, particularly in light of the COVID-19 pandemic, the complexity of the environmental document and its appendices, and the fact that the 2015 FEIR was set aside by the Fifth District Court of Appeal. The comment requests additional time for public review and comment on the SREIR (August 2020), and that the overall timeframe to consider the Project be delayed until the end of 2022 or until the COVID-19 pandemic has subsided.

Please see Response to Comment 0007-6 and GR-3 – Public Process. Lead agencies are not currently required under CEQA to extend public comment periods or delay decisionmakers' consideration of a Project due to the length or technical nature of an environmental document, a project's history of legal challenge, or public health crises. The public has been afforded multiple opportunities to review and submit comments on the Draft SREIR. Separate 45-day public comment periods have now been provided for the SREIR (August 2020 and October 2020), and one virtual scoping meeting and two virtual public workshops have been held. The public was provided the opportunity to submit written comments on the SREIR (August 2020) both during the public comment period and directly at the public workshop via the teleconference platform. Although public workshops are not required by law or subject to the Ralph M. Brown Act (Government Code Sec. 54950) (Brown Act), they were conducted virtually consistent with the standards of Executive Order (EO) N-29-20, which was designed to provide flexibility for public meetings in light of the COVID-19 pandemic and social distancing recommendations. Because the public has been afforded adequate opportunities to review and submit written comments on the SREIR (August 2020) beyond what is currently required by law, neither a 45-day extension of the public comment period nor delaying consideration of the Project until 2022 is warranted at this time.

0009-8

The comment requests that the Project and the SREIR (August 2020) be disclosed in Spanish, and that additional measures should be taken to allow Spanish-speaking residents to participate in the SREIR preparation process. The comment claims that the Court of Appeal, Fifth Appellate District in *King & Gardiner Farms, LLC v. County of Kern* (2020) "underscores the desirability of translation and interpretation services...." Lastly, the comment states that Spanish-speaking residents are disproportionately affected by oil and gas development in the Project Area, and that environmental justice principles dictate that governmental entities promote meaningful participation in their environmental and land use decisionmaking processes.

Please see Responses to Comments 0007-2 and 0007-5. Lead agencies are not required under CEQA or the CEQA Guidelines to translate notices or portions of environmental review documents into non-English languages. In ruling on the 2015 FEIR, the Court of Appeal confirmed that the County was not required to translate public notices or the executive summary into Spanish, or to provide Spanish-language interpreters at public meetings related to the 2015 FEIR. *King & Gardiner Farms, LLC v. County of Kern* (2020) Case No. F077656, Slip Opinion at 122-126 (Cal. Ct. App. 5th Dist. Feb. 25, 2020) (Slip Opinion). Even so, Spanish translation services were provided at the May 13, 2020, virtual scoping meeting, and virtual public workshops on the SREIR (August 2020) and SREIR (October 2020) held on August 17, 2020, and November 10, 2020, respectively. At the public workshops, live translation services and closed captioning in Spanish were provided to facilitate Spanish-speaking residents' participation and understanding of the SREIR. The public workshops on the SREIR (August 2020 and October 2020) were not required under CEQA or subject to the Brown Act requirements for public meetings, but were conducted virtually via teleconference to allow the public (including Spanish-speaking residents) to participate in the SREIR preparation process during the COVID-19 pandemic. Public hearings at both the Planning Commission and Board of Supervisors are required for consideration of the Project and will provide opportunities for public comment. Spanish translation services will be available for the presentation, as well as for Spanish-speakers who request to provide public comment.

0009-9

The comment requests that key environmental documents related to the Project, including the Notice of Availability and portions of the SREIR (August 2020), be translated into Spanish. The comment also states that, while translation services were provided at the August 17, 2020, public workshop on the SREIR (August 2020), environmental impacts were not disclosed, and participants were prevented from making verbal comments. Lastly, the comment requests that two-way simultaneous interpretation services be provided at public meetings and hearings; verbal comments (in addition to written comments) be translated and considered in the record; and any findings or statements of overriding considerations adopted by the Board of Supervisors (if applicable) be translated into Spanish.

Please see Response to Comment 0009-8 and GR-3 – Public Process. Lead agencies are not required under CEQA, the CEQA Guidelines, or California caselaw to translate notices or portions of environmental review documents into non-English languages. The Court of Appeal confirmed that the County was not required to translate public notices or the executive summary into Spanish, or to provide Spanish-language interpreters at public meetings related to the 2015 FEIR. Slip Opinion,

at p. 122-126. As noted in Response to Comment 0009-8, Spanish translation services were provided at the virtual scoping meeting, and virtual public workshops on the SREIR (August 2020) and SREIR (October 2020) with closed captions and live interpretation. Although oral comments (of any language) were not accepted on the teleconference platform, there is no legal requirement to accommodate oral comments in favor of written comments. Public comments received at the August 17, 2020, public workshop that were submitted in Spanish via the teleconference platform were translated into English, considered, and responded to; see Section 7.2.2, Public Workshop, of this chapter. Through these efforts, the public participation process went above what is required by law to ensure that Spanish-speaking residents were afforded the opportunity to understand and submit comments on the SREIR (August 2020 and October 2020). Public hearings at both the Planning Commission and Board of Supervisors are required for consideration of the project and will provide opportunities for public comment. Spanish translation services will be available for the presentation as well as for Spanish-speakers who request to provide public comment.

0009-10

The comment states that a ministerial permitting approach is not permissible because it does not allow for sufficient analysis of each specific unique activity that will later be approved on a ministerial basis.

Please see GR-1 – Beyond the Scope of the SREIR and GR-2 – Ministeriality. The Fifth District Court of Appeal rejected the argument that a discretionary permitting regime was required for each specific oil and gas activity. Slip Opinion, at p. 121. The court held that streamlined permitting is a permissible objective reflecting land use policy decisions within the authority of a county board of supervisors. Slip Opinion, at p. 121, citing *San Diego Citizenry Group v. County of San Diego* (2013) 219 Cal.App.4th 1, 18. The Fifth District also rejected a request for a declaratory judgment that approvals under the Ordinance are not ministerial. Slip Opinion, at p. 140.

The comment states that a local government cannot adopt an ordinance designating a use as subject to ministerial approval because the local government must be able to analyze in an EIR, at the time the ordinance is adopted, each “specific, unique location” where future activities will occur pursuant to the ordinance. This misstates the requirements of CEQA. Local governments hold the authority to establish and amend zoning ordinances. This includes the authority to decide where certain uses will be prohibited, permissible on a “by-right” or ministerial basis, or subject to discretionary review. These determinations are made by the County in its zoning ordinance and other planning documents, and the zoning ordinance or other applicable planning documents are amended in the exercise of local government police power authority. Local governments always lack specific information about where every specific use will occur in the future when they designate a use to be permitted on a by-right or ministerial basis. But CEQA has never been interpreted or applied to forbid counties or cities from exercising this long-well-established police power authority.

In 2010, for example, the County of San Diego adopted a zoning ordinance providing that many wineries that had previously been subject to site-specific discretionary review would, in the future, be “by right” uses. These amendments allowed certain “wineries by right, meaning without a discretionary zoning permit, and without environmental review, unless the activity necessitated some other type of discretionary approval.” *San Diego Citizenry*, 219 Cal.App.4th at 10. The San Diego County ordinance had the effect of eliminating the county’s prior discretionary review processes in favor of much more limited county review. Kern County’s Ordinance is *increasing* the level of environmentally protective measures applicable to oil and gas activities by imposing a heightened, ministerial level of review over uses that are nearly all permitted “by right” under the current zoning ordinance. Consistent with CEQA, San Diego County’s project-level EIR disclosed as much as could reasonably be known about the environmental effects of adopting the ordinance, proposed mitigation as required by CEQA, and adopted appropriate findings, after which winery activities were allowed to occur by right. The Fourth District Court of Appeal—specifically noting the appropriate level of detail required for “a project authorizing a by-right use over a large geographical area”—affirmed San Diego County’s EIR as consistent with CEQA. *San Diego Citizenry Group v. County of San Diego* (2013) 219 Cal.App.4th 1, 20. The Fifth District cited *San Diego Citizenry* approvingly in the Appellate Opinion in this case, when also affirming Kern County’s legal authority to adopt a ministerial permitting ordinance for oil and gas activities. See Slip Opinion, at p. 121.

Numerous other cases affirm a local government’s right to establish by ordinance that certain future uses, although unknown with specificity at the time of ordinance adoption, can be validly subject to a ministerial approval process. See *Sierra Club v. Napa Cty. Bd. of Supervisors*, 205 Cal.App.4th 162, 166 (county ordinance validly established ministerial lot line adjustment process); and *Sierra Club v. Cty. of Sonoma*, 11 Cal.App.5th 11, 17-18 (2017) (county ordinance adopted vineyard erosion-control permit process; court affirmed county’s right to issue ministerial permits under that ordinance). The Ordinance and the SREIR mitigation measures contain detailed performance standards, conditions, and environmental protection measures. These impose numerous requirements, tailored to the specific circumstance of each oil and gas activity and location, on the

basis of fixed and objective standards such as the activity's location, its proximity to objectively defined areas of species habitat, and the type of project activity proposed. All procedural requirements to involve all interested members of the public in the process of reviewing the Ordinance and preparing the environmental review have been complied with. CEQA does not prohibit counties and cities adopting an ordinance that provides for certain uses to be approved on a by-right or ministerial basis. CEQA requires that a local government making that decision "use its best efforts to find out and disclose all that it reasonably can," without resorting to speculation. CEQA Guidelines § 15144-45. This SREIR fully complies with all requirements under CEQA.

0009-11

The comment states that the County has not properly characterized its process as ministerial, and that the Fifth District Court of Appeal did not endorse the basic structure of the Ordinance.

Please see GR-2 – Ministeriality; see also Response to Comment 0009-10. While not determinative, a municipality's classification that an approval process is ministerial is entitled to great weight. *Friends of Davis v. City of Davis* (2000) 83 Cal.App.4th 1004, 1015. The CEQA Guidelines "acknowledge that the local public agency is the most appropriate entity to determine what is ministerial, based on analysis of its own laws and regulations, and urge that the agency make that determination in its implementing regulations[.]" *Sierra Club v. Napa Cty. Bd. of Supervisors*, 205 Cal.App.4th 162, 178, citing CEQA Guidelines § 15022(a)(1)(B) and CEQA Guidelines § 15268 (a)-(c); see also *Sierra Club v. Cty. of Sonoma*, 11 Cal. App. 5th 11, 29 (2017) ("[S]urely" it "is not the law" that an agency's classification of its action as ministerial is "not entitled to judicial deference"). Deference is warranted because the ministeriality determination is based on the interpretation of the County's "own ordinance[.]" rather than a state-adopted standard. *Protecting Our Water & Env'tl. Res. v. Cty. of Stanislaus*, 10 Cal. 5th 479, 499 (2020). The determination is not just legal, but factual. The classification is based on the expert opinion of County staff, who have extensive experience administering ordinances of exactly this sort, and have a significant "comparative interpretive advantage" regarding the processes that are actually involved in administering, reviewing and issuing land use permits. *Protecting Our Water & Env'tl. Res. v. Cty. of Stanislaus*, 10 Cal.5th 479, 499 (2020), citing *Yamaha Corp. of America v. State Bd. of Equalization* (1998) 19 Cal.4th 1, 7.

County staff are also familiar with the "series of finely detailed and very specific regulations" that govern permit issuance, and based on that experience have affirmed that the provisions in the Ordinance do not grant authority to any staff official to exercise personal or subjective judgment over whether or under what conditions to grant a Minor Activity or Conformity Review permit for an activity that meets the fixed and objective standards in the Ordinance. *Sierra Club v. Cty. of Sonoma*, 11 Cal.App.5th 11, 29 ("A provision that appears to a lay person to grant discretion to an agency might, as understood by a person with technical knowledge, grant little or none in the context of a particular proposed project"). The Fifth District rejected the argument that a discretionary permitting regime was required. The Appellate Opinion held that certain impacts in the SREIR should be analyzed or mitigated differently, but the Appellate Opinion declined to accept any of the arguments that the fundamental approach—a ministerial permitting scheme for oil and gas activities—violated CEQA.

0009-12

The comment states that Sections 19.98.050.C and 19.98.060 of the Ordinance allow for discretionary action by the County.

Please see GR-2 – Ministeriality and Responses to Comments 0009-10 and 0009-11. The numeric setback requirements in Section 19.98.060.A of the Ordinance are quintessentially "fixed and objective" standards. No personal or subjective judgment is used to determine whether an oil or gas well is 100 feet or 210 feet (as applicable) from the defined highways, buildings, and uses from which wells must set back. In contrast to the ordinance at issue in *Protecting Our Water & Env'tl. Res. v. Cty. of Stanislaus*, County staff lack any authority to waive or relax these setback requirements. 10 Cal.5th 479, 499 (2020). Only through a discretionary process of a Conditional Use Permit can the setback requirements be amended from these standards. (Ordinance, Section 19.98.050.B.) Section 19.98.050.C of the Ordinance states that if an activity does *not* comply with the fixed and objective Implementation Standards and Conditions in the Ordinance, such as the objective setback requirements in Section 19.90.060.A, then the activity does not qualify for a staff-issued ministerial permit, and the applicant must instead seek approval of a discretionary Conditional Use Permit after compliance with all CEQA requirements applicable to non-ministerial approvals. No personal or subjective judgment is exercised by County staff about whether an activity is "able to comply" with the setback requirements or with any other Implementation Standards and Conditions. To the extent that the comment reads the phrase "unable to comply" in Section 19.80.050.C as suggesting that any County staff member makes any kind of personal or subjective judgment about whether or not a project is "able to comply" with the standards in the Ordinance, the comment misunderstands the provision. An activity either does or does not comply with the Implementation Standards and Conditions. For example, if a well is proposed to be drilled within 210 feet of a dwelling unit, then the activity is not able to comply with the Implementation Standards and Conditions in the Ordinance, and hence the

activity is ineligible for a staff-level ministerial permit. The same “able to comply” language in Section 19.80.050.C was also part of the 2015 Ordinance.

0009-13

The comment asserts that “many” mitigation measures in the SREIR (August 2020) lack fixed standards or objective measurements, and identifies several examples. The comment asserts that, for this reason, the permit process established in the Ordinance cannot properly be characterized as ministerial.

The SREIR (October 2020) contains numerous revisions to mitigation measures to clarify applicable standards and improve the ministerial permit program. See SREIR (October 2020), Vol. 1, at 4.18 (Supplemental Analysis). Revisions to the mitigation measures shown below in strikethrough/underline indicate revisions incorporated into the October 2020 circulation; revisions shown in strikethrough/underline, bold, and italics indicate revisions made in this Response to Comments submittal.

- MM 4.2-2(h) was revised in the SREIR (October 2020) to state:

Overhead electrical or communication lines shall be shown on the Site Plan, and shall be aligned ~~to the greatest extent feasible~~ with existing ~~access~~ roads, ~~existing lines and easements, existing private driveways and/or parallel to tree or row crops. and the minimum distance between the access road and the well installation or other oil and gas facility, parallel to tree or row crops, described further in mitigation measures for Public Utilities. If the use of existing roads is not feasible, lines shall be routed to minimize surface disturbance and minimize the impacts to surface activity.~~ Underground pipelines serving the Project shall be shown on the Site Plan with locations marked and recorded with USAA, and periodically inspected and maintained as described in mitigation measures for Hazards. SREIR (October 2020), Vol. 1, at 4.2-44.

- In response to this comment, MM 4.3-5.c is revised to state:

If the ~~well is located within the above~~ distances ~~set forth in (b), above, cannot be met,~~ and for existing wells that are subject to an Oil and Gas Conformity Review for redrilling or other permitted activities, the Applicant shall provide a site-specific risk assessment to the San Joaquin Valley Air Pollution Control District, which shall include implementation of one or more of the following risk minimization measures, or other such measures that are demonstrated by the Applicant to the San Joaquin Valley Air Pollution Control District, to achieve a level of risk less than the threshold risk level. Written confirmation shall be provided from the San Joaquin Valley Air Pollution Control District that the activity that is the subject of the application will not exceed the risk threshold. The following is a list of accepted risk minimization measures that shall be considered for inclusion by the San Joaquin Valley Air Pollution Control District:

- MM 4.4-14(l), which was not modified in the SREIR (October 2020), provides: “During pre-construction surveys, the qualified biologist shall delineate previously disturbed areas to be used by the applicant to minimize the amount of new disturbance.” SREIR (October 2020), Vol. 1, at 4.18-23. The delineation of previously disturbed areas is determined by the qualified biologist and is not a discretionary determination by permitting staff of the lead agency, the County Planning and Natural Resources Department. A lead agency may rely on discretionary decisions of others, without exercising discretion itself, as explained in *Sierra Club v. County of Sonoma* (2017) 11 Cal.App.5th 11. In that case, the Court determined that the

provision that potentially conferred discretion requires a 50-foot setback for wetlands unless a wetlands biologist recommends a different setback. . . . [A]lthough the details for the size of any setback for undesignated wetlands are left open, the Qualification is itself ministerial because the Ordinance provides that the setback will be whatever a wetlands biologist recommends. The actual size of the setback is not set, but the requirement to accept a biologist recommendation is set. Petitioners point to nothing demonstrating that the [Agricultural] Commissioner [of Sonoma County] had discretion under this provision or, even assuming there was some discretion, could mitigate potential environmental impacts to any meaningful degree. *Sierra Club v. County of Sonoma*, at 29-30.

- MM 4.6-5 was revised in the SREIR (October 2020) submittal, to state:

The Applicants shall avoid building infrastructure on expansive soil, unless the Applicant provides a professional engineering certification that they cannot slant drill from another location to access the site ~~determines that mineral recovery is infeasible from a different location,~~ and site-specific Professional Engineering certification is submitted concluding that the new equipment will not cause substantial risks to life or property. The site specific professional engineering certification must be submitted, and reviewed by the Kern County Public Works Department and a memo provided that agrees that construction and operation of new equipment will not cause

substantial risks to life or property as determined through established engineering standards. All recommendations required by the approved engineering certification from Kern County Public Works shall be implemented. SREIR (October 2020), Vol. 1, at 4.18-32.

Consistent with *Sierra Club v. County of Sonoma*, the determination is made by a professional engineer, subject to review by the County Public Works Department, and is not a discretionary determination by permitting staff of the lead agency, the County Planning and Natural Resources Department.

- MM 4.8-6(b) was revised in the SREIR (October 2020) to state: “Size reserve pits ~~properly~~ to avoid overflows. . . . SREIR (October 2020), Vol. 1, at 4.18-41. In response to this comment, MM 4.8-6(b) is further revised to state: “Size reserve pits to provide the physical capacity necessary properly to avoid overflows.”
- MM 4.8-6(e) was revised in response to this comment to state: “~~Minimize waste generation, such as by d~~Designing systems with the smallest necessary volumes for drilling mud systems to accomplish drilling operations on the CalGEM Permits possible (e.g., drilling mud systems).” SREIR (October 2020), Vol. 1, at 4.18-32.
- In response to this comment, MM 4.8-6(f) has been revised to state: “~~Prevent accumulation~~Reduce the amount of excess fluids entering reserve and production pits beyond what is physically needed for maintaining well control.”
- MM 4.8-8 was revised in the SREIR (October 2020), and further revised in response to this comment, to state: “Applicants shall use the accepted engineering standards for California oil operations recognized as safe and effective by CalGEM and other state and local regulatory agencies including appropriate applicable American Petroleum Institute Standards, or other recognized sources imposing the same or equivalent standards, for their facility operations and permitting. ~~and~~ Applicants shall comply with the most stringent standards applicable to the specific operation such as the following: . . .” SREIR (October 2020), Vol. 1, at 4.18-43.

0009-14

This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0009-15

The comment states that the SREIR fails to address known deficiencies in MM 4.3-8, which creates the Oil & Gas Emission Reduction Agreement (OG-ERA) and fails to adequately analyze or mitigate for PM_{2.5}, as directed by the Court of Appeal.

This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. Please see Responses to Comments 0009-16 through 0009-30 for responses to specific comments on the SREIR analysis.

0009-16

This comment is noted and will be considered by County decisionmakers. The comment gives a generally accurate overview of the SREIR’s approach to mitigating criteria pollutants but does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response.

The SREIR does rely on the San Joaquin Valley Air Pollution Control District’s (SJVAPCD’s) existing air quality rules and regulations, which will limit emissions from permitted sources but not from unpermitted sources. The comment appears to assert that the SJVAPCD will not apply its rules appropriately to Project sources and thus that this approach is not defensible. This is not a reasonable assumption, and the SREIR can rely on the SJVAPCD fulfilling its legal duties: “a condition requiring compliance with regulations is a common and reasonable mitigation measure.” *Oakland Heritage Alliance v. Oakland* (2011) 195 Cal.App.4th 884, 906. In assessing the adequacy of mitigation programs, courts presume that agencies will comply with their own ordinances and requirements. *City of Marina v. Board of Trustees of California State University* (2006) 39 Cal.4th 341, 365; *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 140–141. Because the SJVAPCD rules will not limit emissions, the SREIR finds that the Project will generate significant emissions of oxides of nitrogen (NO_x), reactive organic gases (ROGs), and PM₁₀, including PM_{2.5}, at both a Project and cumulative level. See SREIR (October 2020), Vol. 1, at 4.3-93–142 and 4.3-164–165. The SREIR thus requires feasible mitigation via MM 4.3-1 through MM 4.3-4, which will reduce emissions of these criteria pollutants. See SREIR (October 2020), Vol. 1, at 4.3-90–92. SJVAPCD Rule 2201 will also require emission increases attributable to certain sources (primarily stationary sources) to be offset in conjunction with obtaining authority to construct permits. MM 4.3-8 requires applicants to pay an air emission mitigation fee under the OG-ERA or, alternatively, to undertake direct emission reductions, to fully offset new emission increases from the

Project. See SREIR (October 2020), Vol. 1, at 4.3-164–165. However, even with implementation of this mitigation, the SREIR finds this impact significant and unavoidable at both the project and cumulative levels.

0009-17

The comment states that the SREIR does not analyze whether adequate pollution-reducing opportunities exist in the San Joaquin Valley to offset the Project's emissions. The comment also states that MM 4.3-8 does not mandate any schedule for implementing such pollution-reducing projects or include any mechanism to ensure that the rate of new permitting does not outpace the rate of mitigation. The comment also states that the SREIR does not address potential lag between implementation of the Project and funding and implementing pollution-reducing activities and does not provide historical data on implementation of MM 4.3-8.

Please see GR-1 – Beyond the Scope of the SREIR. Challenges to MM 4.3-8 at the Court of Appeal stated similarly that there was a failure to assess whether sufficient pollution-reducing activities were available and whether it was feasible to offset the Project's emissions. Slip Opinion, at p. 59. As to the feasibility of MM 4.3-8, the Court found that "CEQA and the Guidelines do not explicitly require an EIR's discussion of a fee-based mitigation program to describe the availability of impact reducing or offsetting projects." Slip Opinion, at p. 59. The court concluded that "specific information about projects that might be funded in the future is not required to enable persons reading the EIR to understand and consider meaningfully the issues raised by MM 4.3-8." Slip Opinion, at p. 61. The court also found no evidence that the County failed to disclose all that it reasonably could about future opportunities that might arise under MM 4.3-8. The court stated that "remanding with instructions for the County to provide a more detailed description of the difficulties in forecasting the future opportunities available would not significantly improve the EIR as an informative document." Slip Opinion, at p. 61. The court also found that the EIR determined that MM 4.3-8 was feasible and that this finding was supported by substantial evidence. Slip Opinion, at p. 62. This was despite the fact that information was not provided about the availability of future emission-reducing projects that would be funded by the fees collected from applicants. Slip Opinion, at p. 62. The court did not require the EIR to address projects that might be funded by MM 4.3-8 fees or address whether enough projects exist to make the mitigation "feasible." As to a potential lag between fee collection and implementation of emission reduction projects, the court stated that this did not constitute deferred mitigation, that fee-based programs are authorized by the CEQA Guidelines and have been upheld by the courts, and held that MM 4.3-8 with its potential lag did not violate CEQA so long as it was reasonable and feasible because the EIR fulfilled its role as an informative document in describing the potential lag and how an alternative that would eliminate the lag was not recommended. Slip Opinion, at p. 67.

As described in the SREIR, to implement MM 4.3-8, on August 18, 2016, the County and the SJVAPCD entered into the Oil and Gas Emission Reduction Agreement 20160168 (OG-ERA). The OG-ERA establishes a mitigation fee program whereby oil and gas permit applicants that chose not to undertake direct emission reductions may instead pay an air emission mitigation fee, the proceeds of which are transferred by the County to the SJVAPCD to fund emission reduction projects approved by the SJVAPCD. Examples of feasible emission reduction projects described in MM 4.3-8 include replacing or retrofitting diesel-powered stationary equipment with zero- or lower-emission alternatives; replacing or retrofitting diesel-powered school, transit, municipal, or other community mobile sources with zero- or lower emission alternatives; reducing emissions from public infrastructure sources; and funding lower-emission equipment and processes for local business, schools, non-profits, and religious and public institutions. See SREIR (October 2020), Vol. 1, at 4.3-139.

To address the comment's concerns, the SREIR incorporates information about the potential lag between the issuance of new permits and the onset of air-polluting activities. See SREIR (October 2020), Vol. 1, at 4.3-135–136. The SREIR explains that it is not feasible at this time to identify and commit to specific projects to provide the emission reductions needed under the OG-ERA for the life of the Project. The SREIR also states that the OG-ERA allows for flexibility, technological innovations, and the mitigation fees to be spent on the most effective emission reduction projects available at the time fees are received. As stated by the Court of Appeal, neither CEQA nor the CEQA Guidelines require an EIR's discussion of a fee-based mitigation program to describe the availability of impact reducing or offsetting projects. See Cal. Pub. Res. Code § 21083.1 (interpretation of CEQA and CEQA Guidelines); Slip Opinion, at p. 59. New types of reduction projects will become available as technologies develop over time, and the flexibility of the OG-ERA allows for the mitigation fees to be spent on the most effective emission reduction projects available at the time the fees are received to ensure that emission reductions are achieved for all oil and gas activity over the next two decades. The SREIR also incorporates information on the historic activity under the OG-ERA since initial Project approval in 2015. See SREIR (October 2020), Vol. 1, at 4.3-136–139. There is no evidence that spending the OG-ERA fees is infeasible or that enough emission reduction projects cannot be found in Kern County and the San Joaquin Air Basin to reduce project emissions to net zero as per the OG-ERA and MM 4.3-8. The historic activity for the OG-ERA and fees obtained under it, which has resulted in few to no fees being carried over to 2021, demonstrates the opposite.

Nothing in CEQA or CEQA caselaw requires mitigation fee programs to implement mitigation contemporaneously with project activities. Courts have held that even mitigation with no specific schedule for implementation is sufficient. See *Friends of Lagoon Valley v. City of Vacaville* (2007) 154 Cal.App.4th 807, 818 (absence of specific time schedule for completing road improvements with traffic mitigation fees was not fatal). See SREIR (October 2020), Vol. 1, at 4.3-141–142. Nothing in CEQA requires a mitigation fee program to show contemporaneous mitigation with fee collection or with emitting activities. Improvements from these types of fee-based mitigation programs are never “in place” until fees sufficient for their construction have accumulated from sometimes many projects or until mitigation land has been identified, and these improvements are certainly not in place before impacts occur from the first contributing projects. It is common for wetlands to be destroyed as part of project development before mitigation banking lands are acquired, or for traffic impacts to be occurring while roadway improvement fees are being collected and then improvements are constructed. As the Supreme Court observed in *City of Marina v. Board of Trustees of California State University*, “[a]ll that is required by CEQA is that there be a reasonable plan for mitigation...we must presume and expect that the County will comply with its own ordinances, and spend the fees it collects on the appropriate improvements....” (2006) 39 Cal.4th 341, 365, quoting *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 140–141 (fees sufficient though specific projects and timing left up to county).

The fact that the OG-ERA will result in more emission reductions than is required to reduce emissions from project activities to net zero further supports this program. The majority of project emissions result from construction activities, including well drilling, and these emissions are temporary. However, the emission reduction projects funded by OG-ERA fees result in the permanent shutdown of emitting equipment and the permanent removal of those emissions from the San Joaquin Air Basin. Only the first year of those emission reductions is truly counted as mitigation obtained by the OG-ERA fees, despite the fact that those reductions continue in perpetuity. The OG-ERA results in higher emission reductions than the emissions that occur in just one year from the project and for which fees are paid. For example, fees collected for a well drilled in year one will result in reductions in year two that offset emissions from that well when the emission reduction project implemented with those fees is put into place. As the emission reduction project will continue to result in emission reductions in years three, four, five, etc., it will also offset to some extent construction activities from the project occurring in those later years, even though those projects will also pay mitigation fees into the OG-ERA fund. In this way, even though there is some lag to offsetting emissions, the permanency of the emission reductions helps to reduce the lag.

The 2015 FEIR and the SREIR also take a conservative approach with respect to emissions from drilling and operating future wells by using 2012 oil and gas drilling and operations activity levels as the baseline for measuring impacts. Although the total number of active wells is expected to increase over time from the 2012 baseline activities, CEQA would have allowed the SREIR to subtract baseline activity levels from the total number of projected wells to determine the incremental increase attributed to the Project. However, the 2015 FEIR and the SREIR do not consider that increment; instead, the analysis treats every future well drilled and operated as a new well for which emissions will be mitigated via the OG-ERA. In other words, emissions from well drilling and operations that would otherwise have been subtracted as baseline activities are considered new impacts resulting from the Project and will be mitigated accordingly. This goes further than CEQA requires and is a particularly conservative approach considering that oil well drilling and operation in the County is ongoing and has occurred for many years.

0009-18

Please see Response to Comment 0009-17 and the SREIR (October 2020), Vol. 1, at 4.3-136–139, which discuss historic spending and fee collection under MM 4.3-8 and the OG-ERA.

The SJVAPCD’s 2020 Indirect Source Rule (ISR) Annual Report states that since June 30, 2020—the end of the reporting period for the report—the vast majority of the unencumbered balance has been encumbered or is in the process of being encumbered for emission reduction projects during this fiscal year. See SREIR (October 2020), Vol. 1, at 4.3-139. The comment that the SJVAPCD has not spent all of the fee monies it has received is incorrect, and the lag time complaint has been largely addressed. Even with implementation of MM 4.3-1 through MM 4.3-3, and MM 4.3-8, the SREIR finds that air quality impacts from the Project would be significant and unavoidable at both the project and cumulative levels. The SREIR alerts the public to the potential impacts on the environment of air emissions based on the significant and unavoidable finding. The comment states that in the SJVAPCD’s 2018 ISR Annual Report, 853 tons of NO_x was listed as the emission reduction achieved for the year, which is only enough to mitigate emissions from 367 wells, based on Table 4.3-30. Table 4.3-30 shows that an average well in 2018 will emit an estimated 2.32 tons of NO_x. However, this does not take into account well depth or location, which the OG-ERA fee calculation does. Thus, a comparison of emissions reduced based on the SJVAPCD ISR Annual Reports and tables in the SREIR is not accurate. The comment does not present any evidence of the location, depth, or type of wells

authorized under the Project that would suggest that the 853 tons of NO_x reductions achieved are not enough to reduce emissions from those wells to net zero. Potential lag time between Project implementation and funding and implementation of emission reduction projects, which has been adjudicated by the Court of Appeal as acceptable under CEQA, also could explain a lower NO_x emission reduction than anticipated in any particular year. While the comment asserts that small gaps between onset of activities authorized by the Ordinance and the implementation of mitigation create significant impacts, nothing in CEQA, as confirmed by the Court of Appeal, requires this gap to be eliminated. Evidence shows that MM 4.3-8 and the OG-ERA have been implemented and enforced as expected in the 2015 FEIR and will continue to achieve the reductions necessary to reduce Project emissions to net zero.

0009-19

The comment states that MM 4.3-8 and/or the OG-ERA should be modified to mandate that new emissions from permitted activities may not outpace the SJVAPCD's efforts to identify, fund, and implement contemporaneous pollution-reducing projects.

Please see GR-1 – Beyond the Scope of the SREIR. The scope of the Court of Appeal's decision did not require that MM 4.3-8 or the OG-ERA be modified in any specific way. Please see Responses to Comments 0009-17 and 0009-18, which explain that the Court of Appeal explicitly found that any lag between implementation of Project activities and implementation of emission reduction projects under the OG-ERA did not violate CEQA and did not constitute deferred mitigation so long as the potential lag was explained and disclosed. Past practice with the OG-ERA shows that it is enforceable and workable. The comment has identified no evidence to suggest that the OG-ERA will not fund actual reductions totaling the emissions from the Project.

0009-20

The comment states that the Ordinance, MM 4.3-8, and/or the OG-ERA should mandate quarterly reporting by the County and SJVAPCD that quantifies various items related to the Ordinance and MM 4.3-8.

Please see GR-1 – Beyond the Scope of the SREIR. The scope of the Court of Appeal's decision did not require that MM 4.3-8 or the OG-ERA be modified in any specific way. Please see Responses to Comments 0009-17 through 0009-19, and 0009-148. Nothing in CEQA requires the SREIR to mandate particular reporting in MM 4.3-8 and/or the OG-ERA. While the County's annual reports only report on the amount of fee monies collected, the SJVAPCD ISR Annual Reports report the quantities of air pollution reduced. This information has been incorporated into the SREIR (October 2020), Vol. 1, at 4.3-136–139. See Response to Comment 0009-18. It is possible to determine from the combination of the County reports and the SJVAPCD the amount of emissions reductions likely attributable to OG-ERA funds. As to whether the emission reductions are occurring in Kern County, this is irrelevant for purposes of the SREIR, which requires that all Project emissions of designated criteria pollutants be reduced to net zero and does not mandate reductions within Kern County. Please see Responses to Comments 0009-144 through 0009-147.

0009-21

The comment states that the approach expressed in the SREIR and MM 4.3-8 will not be successful if there are not enough pollution-reducing opportunities available within the SJVAPCD's jurisdiction to offset the Project's emissions.

The comment provides no support for this other than to state that in 2015 two experts asserted that "it is more likely than not that there are simply not enough sources in the Project Area from which any meaningful further reductions can be extracted." First, the OG-ERA funds projects outside of the Project Area and, when necessary, outside of Kern County. Second, mere speculation as to the efficacy of MM 4.3-8 is not enough to substantiate a finding that it is not feasible. Third, the history of the OG-ERA implementation and the funding of emission reduction projects in the SJVAPCD show that in fact emission reduction project have been found to be implemented with mitigation fee monies. There is no new information, as claimed by the comment, that suggests MM 4.3-8 is unable to mitigate Project emissions to net zero. The comment provides no such evidence, nor is there evidence in the annual reports of the County or SJVAPCD that substantiates this opinion. Please see Responses to Comments 0009-17 through 0009-20 and 0009-144 through 0009-147. The commitment to mitigate all Project emissions via MM 4.3-8 and the OG-ERA remains valid and enforceable and thus no feasibility analysis or further justification of MM 4.3-8 is necessary.

0009-22

The comment states that the option in MM 4.3-8 to require applicants to undertake direct emission reductions in lieu of paying mitigation fees is not effective as a backstop, nor enforceable or workable, and that MM 4.3-8 will not achieve its stated goal unless potential lag is reduced and further tracking is introduced.

Please see Responses to Comments 0009-17 through 0009-21, and 0009-144 through 0009-147, and GR-1 – Beyond the Scope of the SREIR. MM 4.3-8 is an enforceable, feasible measure that requires that the Project applicants either pay fees that will offset emissions or implement direct emission reductions. Applicants not complying with this measure will not be permitted to undertake emitting activities under the Ordinance. The implementation of MM 4.3-8 and the OG-ERA since 2015 demonstrates that it is both workable and enforceable. The comment does not provide evidence to the contrary.

0009-23

The comment asserts that there are deficiencies in MM 4.3-8.

Please see Responses to Comments 0009-128 through 0009-152.

0009-24

The comment states that MM 4.3-8 and the OG-ERA should prioritize pollution-reducing projects that provide more community benefits by using fee monies in Kern County.

Please see Response to Comment 0006-12. The SREIR explains that the OG-ERA states that cost-effectiveness should be a key consideration in selecting among emission reduction projects to be funded with mitigation fee monies. See SREIR (October 2020), Vol. 1, at 4.3-135–136. It also states that emission reduction projects in Kern County should be prioritized ahead of emission reduction projects elsewhere in the SJVAPCD. See SREIR (October 2020), Vol. 1, Appendix C. The OG-ERA thus attempts to balance these policy goals by stating that, in selecting emission reduction projects, if Kern County emission reduction projects are not the most cost-effective, then Kern County projects costing up to \$250 more per ton than the most cost-effective emission reduction projects outside Kern County shall nevertheless be selected by the SJVAPCD to spend up to 20 percent of the mitigation fee funds available. If emission reduction projects in Kern County cost in excess of \$250 per ton more than the most cost-effective emission reduction projects in other counties, then those projects outside Kern County may be selected by the SJVAPCD to achieve the required emission reductions. Thus, though some mitigation fees will be spent for projects outside of Kern County, attainment of the federal and state standards for criteria pollutants and impacts from criteria pollutant emissions are an area-wide issue beyond the confines of Kern County. Reductions in emissions outside of Kern County can affect and alleviate pollutant levels in Kern County, based on weather, meteorology, topography, and other factors. The SJVAPCD, as the expert agency on air quality, is best placed to decide which emission reduction projects will best help the San Joaquin Valley to attain the state and federal PM_{2.5} standards. To the extent the comment is concerned about localized impacts of PM_{2.5}, the Health Risk Assessments (HRAs) completed for the Project, along with the mitigation trigger distances required in MM 4.3-5, demonstrate that there will be no adverse health impacts from Project implementation.

The comment also requests that the SREIR explain how emission reduction projects are identified, how decisions are made regarding funding, and how outreach efforts are conducted to identify projects within the County. The OG-ERA gives the responsibility for identifying and funding projects to the SJVAPCD. The County can rely on the SJVAPCD fulfilling its legal duties under the OG-ERA. *Oakland Heritage Alliance v. Oakland* (2011) 195 Cal.App.4th 884, 906; *City of Marina v. Board of Trustees of California State University* (2006) 39 Cal.4th 341, 365; *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 140–141. The list of potential emission reduction projects in MM 4.3-8 is merely illustrative, and emission reduction projects selected for implementation with mitigation fee monies may or may not match these listed projects. There is no requirement that emission reduction projects implemented under the OG-ERA must match those listed as example projects in MM 4.3-8. The comment's request to focus on community benefits outside of the SJVAPCD's typical incentive program to open up the possibility of greater reductions closer to directly impacted community residents will be considered by County decisionmakers. MM 4.3-8 and the OG-ERA will fully mitigate Project emissions, and nothing further is required under CEQA.

0009-25

The comment states that the SREIR does not address the Court of Appeal's direction to discuss the impact of MM 4.3-8 on PM_{2.5} emissions and provide for enforceable mitigation of PM_{2.5} emissions.

MM 4.3-8 is enforceable as to PM_{2.5} because it has been amended to add PM_{2.5} as one of the criteria pollutants that must be offset. See SREIR (October 2020), Vol. 1, at 4.3-142–143. Thus, all Project emissions of PM_{2.5} are required to be reduced to net zero either through payment of mitigation fees via the OG-ERA program or through direct emission reduction projects. This adequately addresses the Court of Appeal's direction to "provide for enforceable mitigation of PM_{2.5} emissions." Slip Opinion, at p. 73. The SREIR also explains how potential emission reduction projects implemented with OG-ERA mitigation fee monies will reduce large proportions of PM_{2.5} as compared to total particulate matter. See Table 4.3-EE, SREIR (October

2020), Vol. 1, at 4.3-140. The SREIR and past implementation of the OG-ERA demonstrate that PM_{2.5} is being reduced in sufficient quantities as compared to its percentage of total project emissions and that likely future emission reduction projects will overwhelmingly reduce PM_{2.5} as compared to PM_{2.5-10}. See SREIR (October 2020), Vol. 1, at 4.3-133–142. Thus, the SREIR also meets the Court of Appeal’s requirement to “discuss the impact of the measure on PM_{2.5} emissions.” Slip Opinion, at p. 73. Please see Responses to Comments 0009-17, 0009-26 through 0009-30, and 0009-144 through 0009-148.

0009-26

The comment states that the SREIR should update its description of the various health effects of PM₁₀ as compared to PM_{2.5}.

The SREIR (August 2020) describes the distinct health effects of PM₁₀ and PM_{2.5} and states that PM_{2.5} is especially dangerous because it contains particles small enough to penetrate the lungs. See SREIR (August 2020), Vol. 1, at 4.3-13. To increase clarity in the document, language has been inserted into the discussion of PM₁₀ and PM_{2.5} health effects in the SREIR (October 2020). See SREIR (October 2020), Vol. 1, at 4.3-14–16; 4.3-28. Please see Response to Comment 0009-141. The SREIR also discusses various studies that address potential relationships between various pollutants, including particulate matter, and health effects. See SREIR (October 2020), Vol. 1, at 4.3-28–41.

0009-27

The comment states that the SREIR neglects to make any changes to the “mitigation regime” that establishes “actual, enforceable mitigation for increased PM_{2.5} emissions caused by the Ordinance.” While acknowledging that MM 4.3-8 was revised to separately list PM_{2.5} as a pollutant that must be fully mitigated, the comment claims this change was “inconsequential” because the OG-ERA has not been changed. The comment claims the SREIR fails to provide enforceable mitigation for PM_{2.5}.

The comment is incorrect. MM 4.3-8 is an enforceable and valid mitigation measure which has been amended to require emissions of both PM_{2.5} and PM₁₀ to be reduced to net zero. The OG-ERA was signed on August 18, 2016, and states that emissions of NO_x, ROG, and PM₁₀ not required to be offset per SJVAPCD rules will be fully mitigated by achieving surplus, quantifiable, and enforceable emission reductions. The OG-ERA states that the SJVAPCD will use mitigation fees collected by the County under the Ordinance to fund emission reduction projects to reduce these criteria pollutants to net zero. The County and the SJVAPCD always intended for the OG-ERA to reduce both PM_{2.5} and PM₁₀ to net zero as mitigation under the 2015 FEIR. Tables 4.3-31 and 4.3-32 in both the 2015 FEIR and the SREIR include total estimated per well emissions from all criteria pollutants, including both PM_{2.5} and PM₁₀ as separately calculated values. See SREIR (October 2020), Vol. 1, at 4.3-129–133. These emissions were used to calculate the OG-ERA fees that applicants would pay in compliance with MM 4.3-8 (establishing the OG-ERA). See SREIR (October 2020), Vol. 1, at 4.3-134. Thus, both PM_{2.5} and PM₁₀ were included in the OG-ERA calculations from the beginning, though the signed OG-ERA collectively calls these emissions PM₁₀.

The SREIR has provided information to clarify that both PM_{2.5} and PM₁₀ are included in the air emission calculations, but that they are combined into a total particulate matter value for use in the calculation of OG-ERA fees and for tracking emission reductions achieved by the OG-ERA. This inclusion is based on the fact that PM_{2.5} is a subset of PM₁₀ and that addressing them jointly is the approach the SJVAPCD has consistently taken in its attainment plans and State Implementation Plan strategies for achieving both PM_{2.5} and PM₁₀ reductions.

The California Air Resources Board (CARB) has also accepted this approach to reducing PM_{2.5}. Emissions of both PM_{2.5} and PM₁₀ were utilized in the creation of the OG-ERA fees, and the SREIR confirms that both pollutants will be adequately mitigated to net zero based on permit fees and OG-ERA implementation. The comment claims that the Court of Appeal decision required that the OG-ERA be revised to refer specifically to PM_{2.5} so that mitigation would be enforceable. In fact, while the court noted (in the “Background” subsection of the PM_{2.5} discussion) that the OG-ERA’s “operative provisions use the term “PM” and, thus do not distinguish between PM₁₀ and PM_{2.5},” the Court did not mandate that the OG-ERA must be amended. Slip Opinion, at p. 69. Instead, the Court of Appeal stated that the EIR must include a detailed statement setting forth how MM 4.3-8 proposes to mitigate the Project’s PM_{2.5} emissions and that MM 4.3-8 must address PM_{2.5} separately. Slip Opinion, at p. 72–73. The SREIR does both.

MM 4.3-8, as revised, provides for enforceable mitigation of PM_{2.5} emissions. Under Guidelines section 15126.4, subdivision (a)(2), mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments. MM 4.3-8 creates an obligation for each applicant to fully offset Project emissions of PM_{2.5}, whether through fees (under the OG-ERA) or through direct emission reduction projects. This requirement is incorporated into the Ordinance as a requirement for permit compliance, i.e., a permit condition. If projects funded through the OG-ERA are demonstrated to inadequately mitigate for emissions of either PM₁₀ or PM_{2.5}, the Ordinance authorizes the County to take enforcement action.

Under Kern County Zoning Code § 19.102.020, any permit can be revoked by the County where any term or condition of the permit has not been complied with. See also SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-168–172 (2015 FEIR GR-19: Enforcement of Mitigation Measures and Ordinance). Please see Response to Comment 0009-148.

0009-28

The comment states that the SREIR's assertion that it is difficult to separate PM_{2.5} and PM₁₀ emissions when creating, implementing, and tracking incentive measures that fund emission reduction projects does not make sense given the SREIR's separate tracking of those in its analysis and the speciation information provided in Table 4.3-EE.

See the SREIR (October 2020), Vol. 1, at 4.3-140; see also Response to Comment 0009-148. The Court of Appeal did not reject this exact argument. The Court of Appeal stated that the argument that it was not scientifically feasible at the time of drafting of the 2015 FEIR to provide a measure in MM 4.3-8 that addressed PM_{2.5} was not supported due to the fact that other mitigation measures treated PM_{2.5} as a key target. This does not state that it is possible, feasible, or required to speciate PM_{2.5} and PM₁₀ when implementing and tracking emission reduction projects funded by mitigation fee monies under the OG-ERA. The court was addressing the possibility of targeting PM_{2.5} in MM 4.3-8, which the SREIR does. The court did not opine on how MM 4.3-8 was required to be implemented, nor how tracking emission reductions achieved under the OG-ERA was required to be completed. While it is possible to speciate PM_{2.5} and PM₁₀, CEQA does not require a fee-based mitigation measure for air quality to track emission reductions by pollutant to be valid. See SREIR (October 2020), Vol., 1 at 4.3-140, Table 4.3-EE; see also Response to Comment 0009-148. The SREIR and past implementation of the OG-ERA demonstrate that PM_{2.5} is being reduced in sufficient quantities as compared to its percentage of total project emissions and that likely future emission reduction projects will overwhelmingly reduce PM_{2.5} as compared to PM_{2.5-10}. See SREIR (October 2020), Vol. 1, at 4.3-133–142. It is also true that segregating and tracking PM_{2.5} separately from PM₁₀ is more difficult than separately tracking pollutants that do not overlap in the way that PM_{2.5} and PM₁₀ do (such as NO_x and ROG). Table 4.3-EE is an example of likely average speciation between general categories of potential emission reduction projects, such as replacing internal combustion engines. To speciate PM from specific projects would require a more detailed and specific analysis than that provided in Table 4.3-EE. The SJVAPCD, as the expert air agency in Kern County, has not suggested that this is required, necessary, or feasible.

0009-29

This comment cites the Court of Appeal's decision as stating that "Mitigation Measure 4.3-8 does not comply with the CEQA requirement for fully enforceable mitigation" because it does not specifically address PM_{2.5}. The SREIR revised MM 4.3-8 to require emissions of both PM_{2.5} and PM₁₀ to be reduced to net zero.

The SREIR addresses PM_{2.5} emissions through MM 4.3-8 and complies with the CEQA requirement for fully enforceable mitigation, as feasible, as required by the court. The Court of Appeal did not require amendment of the OG-ERA, let alone specify how the OG-ERA and the SJVAPCD must track emission reductions achieved with mitigation fee monies. Please see Response to Comment 0009-28. The SJVAPCD ISR Annual Reports show that from 2014 to 2019, 89.9 percent of total funded emission reductions were NO_x, while 11.1 percent of total funded emission reductions were PM₁₀. In 2019, the percentage of PM₁₀ reductions as compared to total reductions was 5.2 percent. The annual average emissions from Table 4.3-32 in the SREIR show that PM_{2.5} is only 2.4 percent of total project emissions. See SREIR (October 2020), Vol. 1, at 4.3-132–133. Comparing the PM_{2.5} emissions to NO_x emissions, this table projects that 3.6 percent of those combined emissions are PM_{2.5}. Emission reduction projects that have already been implemented under the OG-ERA are removing over three times the PM_{2.5} that is being generated by the Project (as a percentage of the total project emissions charged mitigation fees under the OG-ERA). The SREIR does provide evidence that various emission reduction projects, implemented with mitigation fee monies from the OG-ERA that will reduce PM, will result in a large fraction of PM_{2.5} emission reductions as compared to PM_{2.5-10}. See SREIR (October 2020), Vol. 1, at 4.3-140. Table 4.3-EE demonstrates that it is likely that future funded emission reduction projects will reduce PM_{2.5} in a way that is adequate to mitigate for the small fraction of PM emissions from the project that are PM_{2.5} (35 percent of PM emissions are PM_{2.5}, while 65 percent of PM emissions are PM_{2.5-10}).

0009-30

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers.

The comment states that "the County [expects but] does not require . . . full mitigation of the Ordinance's PM_{2.5} emissions." This was not intended. However, to further clarify this full mitigation requirement, MM 4.3-8 has been revised specifically to require full mitigation of PM_{2.5} emissions. MM 4.3-8 is enforceable, as required by CEQA and the Court of Appeal decision. Please see Responses to Comments 0009-17 through 0009-20, 0009-27 through 0009-29, and 0009-144 through 0009-148.

0009-31

The comment states that the Court of Appeal held that the multi-well HRA “must be included in any revised EIR recirculated for public comments before that revised EIR is presented to the Board for certification.” Slip Opinion, at p. 132.

This is accurate; however, nothing in the Court of Appeal’s decision suggests that there were deficiencies in the multi-well HRA that were required to be corrected in the SREIR. The Court of Appeal merely stated that the failure to circulate the multi-well HRA led to a lack of meaningful review by the public. See Slip Opinion, at p. 131. The Court of Appeal judgment states that “because the Multi-Well Health Risk Assessment was not included in the EIR and was not released to the public until five business days before the public hearing on the Project, the ability of the public to review and comment upon it was limited. The Multi-Well Health Risk Assessment must be included in any revised EIR recirculated for public comment before that revised EIR is presented to the Board for certification.” The Court of Appeal did not require any modifications to the underlying analysis in the multi-well HRA conducted in 2015. The court’s reference to the multi-well HRA as “post hoc justification” was made to explain how the misstatements and inferences reasonably drawn from them during the 2015 approval process heightened the need for public review of the multi-well HRA, not that any analysis in the multi-well HRA was in fact inadequate or invalid. See Slip Opinion, at p. 131. Please see Response to Comments 0009-32 and 0009-153 through 0009-159, which explain the modeling and assumptions for the multi-well HRA.

0009-32

The comment references numerous alleged errors in the multi-well HRA discussed in the memorandum of Dr. H. Andrew Gray (Addendum B to the comment letter).

Please see Responses to Comments 0009-153 through 0009-159, which respond to the Gray Memorandum in full.

0009-33

The comment states that the many setbacks in the Ordinance and Mitigation, Monitoring, and Reporting Program (MMRP) are inadequate to protect public health.

The setbacks established in the Project’s air quality mitigation are based on the assessment in the HRA. For further discussion of the adequacy of the HRA analysis and the resulting distances, please see Responses to Comments 0008-27 and 0009-62. The setbacks established in the noise mitigation are based on contours generated by conservative measurements of noise levels of various activities. For further discussion of the adequacy of the triggering distances in the noise mitigation, please see Responses to Comments 0008-20 through 0008-22.

The comment states that there are many studies supporting larger setback distances. For a discussion of studies referenced in this comment, please see Responses to Comments 0009-57 through 0009-89.

The comment states that it is unclear how the various setbacks and mitigation triggering distances apply to Project activities and that it is not clear how these distances are measured. The SREIR (October 2020) has provided an updated discussion of how the various setback distances and mitigation triggering distances interact at SREIR (October 2020), Vol. 1, at 4.12-41–48. The minimum setbacks established by MM 4.12-2 are immutable—no new well may be located within 210 feet of a sensitive receptor or within 300 feet of a school. There are mitigation trigger distances for air impacts, established as a result of the HRA (MM 4.3-5), and for noise impacts from construction (MM 4.12-1) and operations (MM 4.12-2). For both noise and air impacts, the mitigation measures establish a default screening distance beyond which construction activities will not exceed the thresholds established. If there are sensitive receptors inside the distances specified, there is a presumption, based on the studies, that the air quality emissions or noise levels will exceed applicable thresholds. Applicants may only conduct the identified activities inside those distances with mitigation to meet the applicable standards. The SREIR (October 2020) confirms that distances established by the noise mitigation measures and by the air quality mitigation measures are measured from the closest edge of the well pad to the property line of the nearest sensitive receptor. See SREIR (October 2020), Vol. 1, at 4.3-158, 4.12-51.

The comment states that the setbacks developed in the SREIR should be disregarded and a 2,500-foot setback should be adopted, consistent with Ventura County. The setbacks and mitigation triggering distances used in the SREIR (October 2020) are based on a scientific evaluation of potential environmental effects developed using “worst case” conservative assumptions. For further discussion regarding the adequacy of the air quality and noise setbacks and triggering distances, please see Responses to Comments 0008-20 through 0008-22, 0008-27, and 0009-62. For further discussion regarding the consideration of the 2,500-foot setback adopted by Ventura County, please see Response to Comment 0009-86.

0009-34

The comment states that the Project will result in substantially increased domestic or irrigation quality (Municipal and Industrial [M&I] water) use, no mitigation measures are proposed for water supply impacts, and that feasible mitigation measures were inadequately considered.

The SREIR (August 2020) and SREIR (October 2020) state that the Project could result in an increased use of domestic or irrigation quality (M&I) water from approximately 8,778 acre-feet per year (AFY) in the baseline year of 2012, and 9,660 AFY in 2015, to 11,760 AFY in 2035. This potential M&I water use would be 2,982 AFY more than the 2012 baseline consumption, and 2,100 AFY above 2015 consumption. Total M&I water use for oil and gas purposes would amount to 0.34 percent in 2012 to 0.4 percent in 2035 of total Project Area M&I water demand. The potential increase in M&I water demand of 2,982 AFY above the 2012 baseline consumption, and 2,100 AFY above the 2015 consumption, would be approximately 0.102 percent and 0.072 percent of Project Area M&I demand in 2035. See SREIR (October 2020), Vol. 1, at 4.17-70, Table 4.17-26: Produced Water and Oil and Gas M&I Water Demand 2012, 2015, and 2035 and 4.17-75, Table 4.17-31: Total Project Area and Oil and Gas Municipal and Industrial and Agricultural Water Demand (Excluding Produced Water Supplies and Demand) Average, Single Dry, and Multiple Dry Years, 2015, and 2035.

The SREIR (October 2020) includes three water supply mitigation measures: MM 4.17-3, which requires that groundwater may only be used in a permitted Project activity from a water well equipped with a water meter; MM 4.17-4, which requires notice of any application for a Conditional Use Permit for oil and gas activities to appropriate Water Districts, Groundwater Authorities, and the Kern County Water Agency for review and comment on water availability and usage; and MM 4.17-5, which requires payment of a mitigation fee on each well of \$250 for an Oil and Gas Conformity Review and \$50 for each well in a Minor Activity Review that will be deposited into a Disadvantaged Community Drinking Water Grant Fund to be used for the design, permitting, and construction of physical improvements to water wells or water systems serving identified disadvantaged communities in the Project Area. See SREIR (October 2020), Vol. 1, at 4.17-92, 97. The feasibility of implementing potential mitigation measures for water supply impacts is discussed in detail in the SREIR and in Responses to Comments 0009-36 through 0009-47. The feasibility discussion considers additional reuse of produced water for agriculture, banning the use of M&I water, limiting oil and gas activity with permit quotas or similar measures, and implementing one or more of the proposed Sustainable Groundwater Management Act (SGMA) projects identified in Project Area Groundwater Sustainability Plans (GSPs) and Management Area Plans and Management Area Plans. See SREIR (October 2020), Vol. 1, at 4.17-82–92, 96–97. The SREIR thus provides a detailed and thorough discussion of potential water supply impacts, considers the feasibility of a wide range of potential mitigation measures, adequately explains why certain measures cannot be feasibly implemented, and identifies mitigation measures that will be implemented as required by CEQA and as discussed in the Slip Opinion.

0009-35

The comment states that the SREIR relies on the SGMA for not adopting mitigation measures.

Please see Responses to Comments 0009-36 through 0009-38 for detailed responses to the general contentions in this comment. The SREIR (October 2020) includes three water supply mitigation measures: MM 4.17-3, which requires that groundwater may only be used in a permitted Project activity from a water well equipped with a water meter; MM 4.17-4, which requires notice of any application for a Conditional Use Permit for oil and gas activities to appropriate Water Districts, Groundwater Authorities, and the Kern County Water Agency for review and comment on water availability and usage; and MM 4.17-5, which requires payment of a mitigation fee on each well of \$250 for an Oil and Gas Conformity Review and \$50 for each well in a Minor Activity Review that will be deposited into a Disadvantaged Community Drinking Water Grant Fund to be used for the design, permitting, and construction of physical improvements to water wells or water systems serving identified Disadvantaged Communities in the Project Area. See SREIR (October 2020), Vol. 1, at 4.17-92, 97.

0009-36

The comment states that the SREIR did not adopt mitigation measures due to the exclusive authority granted to Groundwater Sustainability Agencies (GSAs) under the SGMA to regulate groundwater extractions.

The SREIR (October 2020) provides a detailed discussion of the role of GSAs under the SGMA, the provision of exclusive authority for properly formed GSAs to implement the SGMA within their jurisdictional boundaries, and exclusivity asserted by Project Area GSAs to implement SGMA authority within the Project Area. The SGMA is a locally based approach to long-term sustainable groundwater management that allows for a variety of approaches and requires that undesirable groundwater results be avoided by implementing comprehensive solutions for each applicable basin and subbasin. The

formation of GSAs; the adoption of GSPs and Management Area Plans; the development of technical hydrological information at a basin, subbasin, and plan level; and the consideration and integration of a wide range of interests affected by groundwater have never before been attempted, let alone successfully implemented, in California. The adopted GSPs in the Project Area represent initial approaches for implementing the SGMA that will be adaptively managed and revised as necessary to comprehensively meet SGMA requirements over the statutory 20-year compliance period and a 50-year planning and implementation horizon. See SREIR (October 2020), Vol. 1, at 4.9-10–14.

The feasibility of implementing potential mitigation measures to predictably reduce water supply impacts is analyzed in detail in the SREIR. Potential mitigation measures considered in the analysis include additional reuse of produced water for agriculture, banning the use of domestic or irrigation quality (M&I) water, limiting oil and gas activity with permit quotas or similar measures, and implementing one or more of the proposed SGMA projects identified in Project Area GSPs and Management Area Plans. The feasibility and effectiveness of these measures to predictably reduce Project water supply impacts was analyzed with reference to multiple criteria. The criteria include:

- Regulatory uncertainty;
- Produced water treatment and other technological limitations;
- Lack of sufficient recycled and produced water treatment conveyance and distribution facilities;
- Economic factors, including factors identified in Project Area GSPs and Management Area Plans;
- Engineering and safety concerns related to the need for higher quality water in certain oil and gas operations;
- Potential generation of new significant environmental impacts, such as increased air and greenhouse gas emissions required to expand produced water treatment, building, and operating new produced and recycled water conveyance and distribution facilities, or using heavy vehicles to deliver M&I water;
- The GSP and Management Area Plan revisions that will occur at least at five-year intervals over the multi-decade SGMA process, including the high probability that Project Area SGMA projects will be substantially modified over time; and
- The fact that GSAs with authority to implement SGMA plans in the Project Area have specifically stated that certain SGMA projects, such as agricultural land fallowing, would cause substantial social and economic harm and that efforts will be made to avoid such measures by adaptive plan management.

See SREIR (October 2020), Vol. 1, at 4.9-208–215, 4.9-219–221, 4.17-82–92, and 4.17-96–97.

The SREIR (October 2020) includes three water supply mitigation measures: MM 4.17-3, which requires that groundwater may only be used in a permitted Project activity from a water well equipped with a water meter; MM 4.17-4, which requires notice of any application for a Conditional Use Permit for oil and gas activities to appropriate Water Districts, Groundwater Authorities, and the Kern County Water Agency for review and comment on water availability and usage; and MM 4.17-5, which requires payment of a mitigation fee on each well of \$250 for an Oil and Gas Conformity Review and \$ 50 for each well in a Minor Activity Review that will be deposited into a Disadvantaged Community Drinking Water Grant Fund to be used for the design, permitting, and construction of physical improvements to water wells or water systems serving identified Disadvantaged Communities in the Project Area. See SREIR (October 2020), Vol. 1, at 4.17-92, 97. The SREIR thus provides a thorough analysis of potential water supply mitigation measures, provides substantial evidence in support of conclusions that certain measures cannot be feasibly implemented and predictably reduce water supply impacts, and requires the implementation of three water supply impact mitigation measures.

0009-37

The comment states that the SREIR did not adopt mitigation measures due to the evaluation of SGMA projects in GSPs and Management Area Plans by qualified technical experts as required by the SGMA.

The SREIR (October 2020) provides a detailed analysis of the feasibility of implementing potential mitigation measures to predictably reduce water supply impacts. See Response to Comment 0009-36 and SREIR (October 2020), Vol. 1, at 4.9-208–215, 4.9-219–221, 4.17-82–92, and 4.17-96–97. The SREIR requires the implementation of three water supply impact mitigation measures. See Response to Comment 0009-36 and SREIR (October 2020), Vol. 1, at 4.17-92, 4.17-97.

0009-38

The comment states that the SREIR did not adopt mitigation measures due to potential conflicts with SGMA projects in GSPs and Management Area Plans that rely on produced water.

The SREIR considers each GSP and Management Area Plan adopted for any portion of the Project Area and evaluates the extent to which oil and gas operations were identified as a significant factor affecting the achievement of SGMA objectives for applicable subbasins and basins over the SGMA's 50-year planning and implementation horizon, which extends to 2070. None of the adopted GSPs or Management Areas Plans within the Project Area identify oil and gas operations as a significant factor affecting the achievement of any of the SGMA objectives or include oil and gas-related activity as a significant net consumer or other factor reducing available supplies over time. Almost all of the GSPs and Management Area Plans explicitly exclude oil and gas operational areas, and exempted aquifers under the Underground Injection Control (UIC) program, from SGMA-regulated groundwater basins. Several identify the potential use of treated and/or blended oil and gas produced water as a potential source of new imported water that would increase available supplies for agricultural irrigation purposes and reduce potential groundwater demand over time. See SREIR (August 2020), Vol. 1, at 4.9-29–52.

The GSPs and Management Area Plans refer to produced water as an “imported” supply because the potential supplies are located outside of the SGMA basin. The 2020 Annual Report prepared by Project Area GSAs, for example, lists produced water as an existing imported water supply that augments basin water resources. See SREIR (August 2020), Vol. 1, at 4.9-15–16. Several of the GSPs and Management Area Plans consider the potential expansion of produced water imported into SGMA-regulated basins to increase available irrigation water supplies, reduce potential groundwater demand, and help achieve SGMA objectives. The plans recognize that produced water availability is a significant factor that affects the feasibility of additional produced water use for irrigation. The Cawelo GSA Management Area Plan, for example, states that the amount of treated produced water that may be available for irrigation in the Project Area “will fluctuate with oil production and long-term availability cannot be predicted” and assumes that “delivery rates for treated produced water decrease by one percent every year from 2041 through 2070 to reflect the aging of the oil fields and reduction in oil and gas production.” See SREIR (October 2020), Vol. 1, at 4.9-153–156.

The SREIR accurately discusses factors that could affect the future supply of imported produced water for the uses considered in Project area GSPs and Management Area Plans and other potential mitigation measures, including measures to increase the reuse of produced water for agriculture, banning the use of domestic or irrigation quality (M&I) water, limiting oil and gas activity with permit quotas or similar measures, and implementing one or more of the proposed SGMA projects identified in Project Area GSPs and Management Area Plans. The feasibility and effectiveness of these measures to predictably reduce the Project's water supply impacts was analyzed with reference to multiple criteria, including:

- Regulatory uncertainty;
- Produced water treatment and other technological limitations;
- Lack of sufficient recycled and produced water treatment conveyance and distribution facilities;
- Economic factors, including factors identified in Project Area GSPs and Management Area Plans;
- Engineering and safety concerns related to the need for higher quality water in certain oil and gas operations;
- Potential generation of new significant environmental impacts, such as increased air and greenhouse gas emissions required to expand produced water treatment, building, and operating new produced and recycled water conveyance and distribution facilities or using heavy vehicles to deliver M&I water;
- The GSP and Management Area Plan revisions that will occur at least at five-year intervals over the multi-decade SGMA process, including the high probability that Project Area SGMA projects will be substantially modified over time; and
- The fact that GSAs with authority to implement SGMA plans in the Project area have specifically stated that certain SGMA projects, such as agricultural land fallowing, would cause substantial social and economic harm and that efforts will be made to avoid such measures by adaptive plan management.

See Response to Comment 0009-36 and SREIR (October 2020), Vol. 1, at 4.9-208–215, 4.9-219–221, 4.17-82–92, and 4.17-96–97.

The SREIR includes three mitigation measures to reduce water supply impacts. See Response to Comment 0009-36 and SREIR (October 2020), Vol. 1, at 4.17-92, 97. The SREIR thus provides a thorough and detailed discussion of potential mitigation for

water supply impacts, determines that certain potential measures are infeasible for multiple reasons supported with substantial evidence, and includes feasible water supply impact mitigation measures.

0009-39

The comment states that the SREIR uses the SGMA to avoid implementing feasible mitigation measures.

The SREIR provides a thorough and detailed discussion of potential mitigation for water supply impacts, determines that certain potential measures are infeasible for multiple reasons supported with substantial evidence, and includes feasible water supply impact mitigation measures. See Response to Comment 0009-36 and SREIR (October 2020), Vol. 1, at 4.9-208–215, 4.9-219–221, 4.17-82–92, and 4.17-96–97. The SREIR includes three mitigation measures to reduce water supply impacts. See Response to Comment 0009-36 and SREIR (October 2020), Vol. 1, at 4.17-92, 97.

0009-40

The comment states that the SREIR does not consider mitigation measures, such as permit quotas, that could reduce water supply impacts due to conflicts with SGMA projects that would use produced water and due to the generation of adverse economic and social consequences in the County.

See SREIR (August 2020), Vol. 1, at 4.9-15–16. Several GSPs and Management Area Plans adopted in the Project Area seek to expand the importation of produced water and related treatment and facilities to increase the availability of these supplies. The future availability of produced water is explicitly recognized as a potential constraint on achieving these objectives. The SREIR accurately discusses factors that could affect the future supply of imported produced water for the uses considered in Project Area GSPs and Management Area Plans. Produced water is a source of new, imported supply to SGMA-regulated basins in the Project Area. See Response to Comment 0009-38. The SREIR provides substantial evidence of the economic importance and significant, adverse social consequences that would be associated with a decline in the oil and gas industry. Kern County accounts for approximately 80 percent of total California oil and gas production and remains one of the largest oil and gas-producing counties in the United States. Six of the 10 largest property taxpayers in the County are oil and gas companies, and the industry generates approximately \$925 million in state and local tax revenues and \$1.6 billion in labor income per year. Oil and gas companies directly employ 14,213 people and indirectly generate 9,687 jobs in Kern County.

From 2014 to 2016, the oil and gas sector contracted as global oil prices fell. The total assessed value of property in the County fell by over \$12 billion, and in fiscal year 2016–2017, the County experienced a budget deficit of \$44.5 million and declared a fiscal emergency. By 2019, oil prices recovered to about \$55 per barrel, and most of the 2016–2017 deficit could be retired by the County. In January 2020, state regulators publicly indicated that oil and gas activity in California would be discontinued, which prompted a meeting between the County Board of Supervisors and state regulators attended by over 1,000 members of the public. The COVID-19 pandemic also resulted in an unprecedented rapid and large increase in County unemployment and depressed oil and gas prices, circumstances that have been identified by County officials to be as severe as or more difficult than the 2016–2017 conditions that triggered the County’s four-year fiscal emergency. See SREIR (October 2020), Vol. 1, at 4.17-1–2.

The SREIR evaluates several potential mitigation measures for water supply impacts, including limiting oil and gas activity with permit quotas or similar measures. The SREIR accurately explains that such measures are inconsistent with one of the Project’s primary purposes, which is to encourage and expand one of the County’s largest and most essential industries with a ministerial permitting program, subject to specific permitting criteria and new and expanded environmental protections. The SREIR also provides a detailed analysis of the legal, regulatory, and social and economic factors affecting the feasibility of these measures. See Responses to Comments 0009-36 and 0009-41, and SREIR (October 2020), Vol. 1, at 4.9-208–215, 4.9-219–221, 4.17-82–92, 4.17-96–97; see also SREIR (October 2020), Vol. 1, at 6.0 (Alternatives).

0009-41

The comment states that drilling limitations should be imposed to mitigate potential water supply impacts, the SREIR improperly cites exposure to takings liability if certain restrictions on drilling were imposed, that there is unlikely to be takings liability for nuisance activities, and that limitations on drilling should not be considered infeasible due to potential takings liability. The comment also states that an industry operator would be unlikely to successfully make a takings claim under the applicable legal theories and cites legal authorities in support of its statements.

Please see Responses to Comments 0009-84 through 0009-88, explaining potential takings liability in connection with the 2,500-foot setback alternative. The SREIR (August 2020) explains the potential for takings liability in connection with limitation or elimination of mineral owners’ right to access their minerals. This discussion has been updated in the SREIR (October 2020).

See SREIR (October 2020), Vol. 1, at 6-34–45. The discussion explains that land use regulations must be reasonable in light of the need for the regulations to protect public safety. While other jurisdictions may have adopted varying distances of setback, excessive distances, such as those in Ventura County, are subject to litigation and have questionable legal viability. Certain limitations on drilling, whether in the form of setbacks or other proscriptions in the Ordinance, could expose the County to potential takings liability.

The SREIR contains a discussion of the concepts articulated in the legal authorities cited in the comment. Takings claims are treated differently depending on the nature of the claim. Any physical invasion of property compelled by regulation is a *per se* taking that requires compensation. *Lucas v. S.C. Coastal Council* (1992) 505 U.S. 1003, 1015 (*Lucas*). A regulation is also deemed a facial, *per se* taking where the regulation denies the owner all economically viable use of their property. *Lucas*, at 1015. Takings claims could apply under this theory depending on the type of potential restriction in an ordinance. However, regulatory takings may also occur—and compensation may be required—where the owner is deprived of some, but not all, of the economic use of the property. *Penn Cent. Transp. Co. v. City of New York* (1978) 438 U.S. 104, 123 (*Penn Central*). Under this theory, a variety of factors are evaluated to determine if a taking has occurred. A “regulatory taking” occurs when some governmental action restricts an owner’s use and enjoyment of the property to the extent that it amounts to a taking, even though there is no planned or formal exercise of the power of eminent domain. See *Hensler v. City of Glendale* (1994) 8 Cal.4th 1, 13 (“a ‘regulatory taking,’ [is] one that results from the application of zoning laws or regulations which limit development of real property”).

Courts have recognized a landowners’ right to extract natural resources from a property as sufficient to support a regulatory takings claim. See *Pennsylvania Coal Company v. Mahon* (1922) 260 U.S. 393, 415–416 (finding that a property restriction that prohibited coal mining “in such a way as to cause the subsidence of, among other things, any structure used as human habitation” was a regulatory taking that required just compensation). In California, a regulation that “affords the respondents no adequate means of protection or substitute for their right to extract oil from the property” constitutes a taking. *Braly v. Board of Fire Com’rs of City of L.A.* (1958) 157 Cal.App.2d 608, 614 (declaring that the right to extract oil “is as much entitled to protection as the property itself, and the undue restriction of the use thereof is as much a taking for constitutional purposes as appropriating or destroying it”).

The comment states that a regulatory taking under the theory articulated in *Penn Central* would not be able to be shown. The *Penn Central* test is only a framework, and “[b]right line” precedent is not the prevailing jurisprudential norm in this area of the law.” *Twain Harte Associates, Ltd. v. Cnty. of Tuolumne* (1990) 217 Cal.App.3d 71, 83–84. In *Penn Central*, the court held that the designation of a landmark by the New York City Landmarks Preservation Committee did not constitute a regulatory taking. The court acknowledged that the landmark designation eliminated “air rights” above the property, but found that the designation “contemplate[d] that [the landowner] continue to use the property precisely as it has been used for the past 65 years,” which would allow the landowner to “profit” and generate a “reasonable return” on its investment. *Penn Central*, at 136–137. The court noted that the landowner had only been denied one building approval, rather than the entirety of their air rights. *Penn Central*, at 136–137. Here, direct limitations on oil drilling by the Ordinance present a different factual circumstance from *Penn Central*. If certain, direct limitations on drilling were in place, many operators would not be allowed to continue using their property as they have. These existing operators have invested substantial resources and infrastructure in their property rights in the County. Even if operators have profited from those investment so far, their investment-backed expectations for the field are based on the prospect of continued drilling of new wells within this portion of the field. See *Avenida San Juan Partnership v. City of San Clemente* (2011) 201 Cal.App.4th 1256, 1273. This would be particularly true for operators who have invested in their properties exclusively for use as an oil field or oil and gas asset. *Penn Central*, at 130, fn. 30. These concepts of regulatory takings are described in the SREIR in the context of the 2,500-foot setback, but are applicable to any potential limitation on drilling that deprives mineral rights owners of use of or access to their property. The SREIR thus contains a thorough discussion of the infeasibility of such restrictions.

0009-42

The comment states that the SREIR should consider limiting drilling as a water supply mitigation measure, particularly for enhanced oil recovery (EOR) purposes as well as indirect drilling limitations.

The SREIR (October 2020) specifically considers direct and indirect potential water supply impact mitigation measures, including permit quotas and domestic or irrigation quality (M&I) water use bans for oil and gas operations. Limiting the amount of oil and gas activity in the Project Area through a permit quota or similar measure or M&I water use restrictions, was determined to be infeasible for several reasons, including inconsistency with the Project’s primary purpose, and other legal, regulatory, and social and economic factors. See Responses to Comments 0009-36, 0009-38, 0009-40, and 0009-41,

and SREIR (October 2020), Vol. 1, at 4.9-208–215, 4.9-219–221, 4.17-82–92, and 4.17-96–97; see also SREIR (October 2020), Vol. 1, Section 6.0 (Alternatives).

With regard to M&I water use bans, the County has no jurisdiction over groundwater allocations and simply reducing the number of oil and gas wells drilled may not actually reduce groundwater use. The groundwater being used by the oil companies primarily comes from water districts, who will then move the water to another use in the basin. There is also no substantial evidence that, in response to an M&I water use ban, treatment technologies and distribution systems in the Project Area can be feasibly developed and operated in a manner that would reduce M&I water use by oil and gas operators in a predictable manner over time and without causing other significant environmental impacts. During 2016 to 2019, some of the Project applicants were able to implement measures to reduce oil and gas use of higher quality M&I water, and additional measures were planned for future periods. While this shows that it may be possible to encourage reduced M&I water use, it does not demonstrate that any such reduction can be feasibly implemented in a manner that will reduce Project water supply impacts to a predictable extent and on a widespread basis throughout the Project Area. Some oil and gas operations, such as well drilling and abandonment work, require high quality water to properly formulate the cement mixtures that are needed to safely drill and abandon wells.

The use of produced water for well stimulation treatments would also significantly increase chemical use as well as costs. Most of the use of M&I supplies for EOR occur in the Western Subarea because existing water quality is particularly poor in that portion of the Project Area. A feasible method for treating and distributing treated local low-quality water or produced water for widespread EOR use has not been identified in that region, including in GSPs or Management Area Plans adopted for this location. The Westside District Water Authority (WDWA), for example, has proposed SGMA projects that would treat saline local groundwater or produced water with several potential technologies to enhance local supplies. The WDWA GSP states that the feasibility of any such treatment and reuse is under investigation and subject to several unresolved technical and economic uncertainties. In response to a domestic and irrigation-quality water use ban, oil and gas operators in the Project Area would likely be required to treat additional amounts of produced water or truck in M&I supplies for activities that require higher quality water. This treatment and heavy vehicle activity would require additional permitting processes to avoid adverse secondary environmental impacts, including increased energy and vehicular use and greenhouse gas emissions. The SREIR provides substantial evidence that curtailing oil and activities with a permit quota or similar measure, or banning M&I water use by oil and gas operators, would be economically, socially, environmentally, and technologically infeasible. See SREIR (October 2020), Vol. 1, at 4.9-209–212 and 4.17-84–88.

0009-43

The comment states that the SREIR limits consideration of potential water supply impact mitigation measures to the additional reuse of produced water.

The SREIR (October 2020) considers potential mitigation measures that include banning the use of M&I water, limiting oil and gas activity with permit quotas or similar measures, implementing one or more of the proposed SGMA projects identified in Project Area GSPs and Management Area Plans, as well as additional reuse of produced water for agriculture and oil and gas activity. Please see Response to Comment 0009-36 and SREIR (October 2020), Vol. 1, at 4.9-208–215, 4.9-219–221, 4.17-82–92, and 4.17-96–97. The SREIR includes three mitigation measures to reduce water supply impacts. See Response to Comment 0009-36 and SREIR (October 2020), Vol. 1, at 4.17-92, 4.17-97. The SREIR thus provides a thorough and detailed discussion of potential mitigation for water supply impacts, determines that certain potential measures are infeasible for multiple reasons supported with substantial evidence, and includes feasible water supply impact mitigation measures.

0009-44

The comment states that the SREIR should implement one or more of the proposed SGMA projects identified in Project Area GSPs and Management Area Plans to mitigate the Project's water supply impacts.

The SREIR (October 2020) considers the potential implementation of SGMA projects and determines that this mitigation would be infeasible for several reasons. The SGMA projects represent an initial effort to identify potential measures to achieve SGMA objectives over a statutory 20-year implementation period and a subsequent 30-year period through 2070. The GSPs and Management Area Plans are based on adaptive management principles, and it is virtually certain that the nature and extent of SGMA projects that will be utilized by Project Area GSAs to achieve SGMA objectives will significantly modified during successive GSP and Management Area Plan five-year reviews, during the statutory 20-year SGMA compliance period, and over the 50-year planning and implementation horizon mandated by the SGMA and the SGMA regulations. Several of the SGMA projects, including expanded treatment and use of lower quality groundwater and produced water for domestic and irrigation (M&I) purposes, are subject to significant technological, economic, environmental, and permitting uncertainties

that are discussed in detail in the GSPs and Management Area Plans. Other measures, such as agricultural land fallowing, are discussed in the GSPs and Management Area Plans as potential SGMA projects that the GSAs seek to avoid due to the significant adverse social and economic consequences that would occur from implementation. Other SGMA projects, such as basin-wide groundwater extraction limitations, must be implemented by properly formed GSAs in accordance with the SGMA. See SREIR (October 2020), Vol. 1, at 4.9-212–214 and 4.17-87–89.

The SREIR provides substantial evidence that water supply mitigation based on the implementation of SGMA projects involving basin-wide groundwater extraction limits that fall within the statutory authority provided to GSAs by the SGMA, is infeasible.

0009-45

The comment states that the SREIR should consider demand reduction mitigation measures, including increased oil and gas use of produced and reclaimed water, other oil and gas industry domestic and irrigation quality (M&I) water use reductions, and agricultural land fallowing.

The increased use of produced and recycled water in place of M&I supplies by oil and gas operators is considered in detail in the SREIR (October 2020). Certain oil and gas operations, such as well drilling and abandonment work, require high quality water to properly formulate the cement mixtures that are needed to safely drill and abandon wells. There is also no substantial evidence that produced water treatment technologies and distribution systems in the Project Area can be feasibly developed and operated in a manner that would reduce M&I water use by oil and gas operators in a predictable manner over time and without causing other significant environmental impacts. From 2016 to 2019, in response to water supply mitigation measures included in the FEIR 2015 that were invalidated in the Slip Opinion, some Project applicants were able to implement measures to reduce oil and gas use of higher quality M&I water, and additional measures were planned for future periods. While this shows that it may be possible to encourage reduced M&I water use, it does not demonstrate that any such reduction can be feasibly implemented in a manner that will reduce Project water supply impacts to a predictable extent and on a widespread basis throughout the Project Area. Produced water is currently used for oil field activities, such as discharge for dust suppression, but increasing that use beyond existing levels would require additional permitting and approvals to avoid impacts to biological, water, and other resources.

Additionally, the lack of infrastructure linking sources of produced water to the locations where water may be used, particularly in cases of new exploration, can result in increased truck trips and other more significant impacts associated with transporting produced water to operation sites. For example, pilot EOR projects typically cannot use recycled water due to the early stage of project development, which results in a lack of available recycled water that can be obtained from recycled water suppliers using existing, or feasibly expanded, treatment and distribution facilities. Produced water treatment for reuse requires specialized equipment, consumes energy, and generates waste. M&I water supplies could also be trucked to remote locations which would generate air quality and greenhouse gas impacts. A feasible method for treating and distributing treated local low-quality water or produced water for widespread EOR use has not been identified in that region, including in GSPs or Management Area Plans adopted for the Project area. The WDWA, for example, has proposed SGMA projects that could treat local, saline groundwater or produced water with several potential technologies to enhance local supplies. The WDWA GSP states that the feasibility of any such treatment and reuse is under investigation and subject to several unresolved technical and economic uncertainties. The SREIR provides substantial evidence that curtailing oil and activities with a permit quota or similar measure, or banning M&I water use by oil and gas operators, would be economically, socially, environmentally, and technologically infeasible. See SREIR (October 2020), Vol. 1, at 4.9-209–212, 4.17-84–88.

The SREIR (October 2020) considers purchasing and fallowing agricultural land to mitigate for Project water supply impacts. There is no evidence that fallowing programs proposed in the Project Area or within the San Joaquin Valley intend to stop all use of water from the fallowed lands. Instead, the fallowing programs take land with some small water allocation but not enough to farm productively and then retire that land and aggregate that water to other more productive fields. GSAs and individual water districts in the Project Area are already acquiring land and working with agricultural landowners to ensure the preservation of productive land. Higher-quality water supplies, including groundwater, that are used in oil operations and bought from a water district already include the costs of implementation of fallowing programs. The implementation of fallowing and similar demand reduction for Project mitigation purposes conflicts with the express objectives of adopted GSPs in the Project Area, such as the Kern River GSP, which states that “demand reduction projects could have a detrimental impact on the local economy, livelihood of residents and business owners, and the well-being of Metropolitan Bakersfield and Kern County...[and]... large-scale reductions are not proposed in Phase One and may be unnecessary for achieving the sustainability goal.” The Kern Groundwater Authority GSP states that SGMA plans will be adaptively managed to address the fact that the “communities, the economy, and local governments are and have been reliant on Kern County agriculture and are dedicated

to preserving the viability of agriculture into the future.” It is uncertain whether fallowing and similar demand reduction measures curtailing Project Area agricultural water use would reduce water demand without additional restrictions. Growers that have not ceased operations, for example, may be induced to increase irrigation or plant more remunerative crops with higher water demands in response to the fallowing of adjacent formerly operating farmland. See SREIR (October 2020), Vol. 1, 4.9-213–215 and 4.17-88–89. The SREIR thus provides substantial evidence that fallowing and similar agricultural demand reduction measures would not predictably reduce Project water supply impacts.

0009-46

The comment states that the SREIR should consider mitigation for water supply impacts by implementing a drinking water protection program consistent with some community advocate comments submitted on GSPs as part of the SGMA process.

The SREIR (October 2020) includes MM 4.17-5, which requires that oil and gas applicants subject to Oil and Gas Conformity Review pay a \$250 mitigation fee per well and those subject to Minor Activity Reviews pay \$50 per well. These funds will be deposited into a Disadvantaged Community Drinking Water Grant Fund to be implemented by the Kern County Public Health Department in the form of grants available only for projects in disadvantaged communities in the San Joaquin Valley portion of Kern County. The use of the grant funding would be targeted for the design, permitting, and construction of physical improvements to water wells or water systems serving a disadvantaged community and primarily would act as matching funds for larger grant opportunities from other sources. Based on the average Project permitting activity, this mitigation measure will generate an estimated \$460,000 annually. Duly formed GSAs must consider the interests of all beneficial uses and users of groundwater in the development and implementation of GSPs and Management Area Plans, including disadvantaged communities. See Cal. Water Code § 10723.2. There is substantial evidence, such as a July 2020 report by researchers at the University of California, Davis, that most GSPs developed in the state do not adequately consider how drinking water stakeholders could be impacted based on applicable SGMA Sustainable Management Criteria and do not promote disadvantaged community benefits. MM 4.17-5 will mitigate the Project’s fair share of cumulative impacts to disadvantaged communities that are insufficiently considered in the existing SGMA process. See SREIR (October 2020), Vol. 1., 4.17-96–97.

0009-47

The comment states that the SREIR should consider mitigation for water supply impacts by implementing groundwater metering.

The SREIR (October 2020) includes MM 4.17-3, which requires that all Project activities subject to Oil and Gas Conformity Reviews and Minor Activity Reviews fully account for any groundwater and reclaimed water use, and that any groundwater will only be obtained from metered wells. An annual report prepared by the Kern County Planning and Natural Resources Department will identify the amount of groundwater and reclaimed water used for Project activities in the prior year and verify that all groundwater source wells for permitted activities are metered. The SREIR (October 2020) includes MM 4.17-4, which ensures that applicable water management agencies have the opportunity to review and comment on the availability and usage of water prior to permitting of any oil and gas activity subject to Conditional Use Permit approval by the County. This information will be available for integration and use by Project Area GSAs in the adaptive management of adopted GSPs and Management Area Plans to achieve the comprehensive sustainable groundwater management solution required by the SGMA. These mitigation measures will support the implementation of the SGMA in the Project Area. See SREIR (October 2020), Vol. 1, at 4.17-90–92.

0009-48

The comment states that the SREIR fails to analyze water quality– and health-related impacts of reusing oil wastewater for irrigation and domestic purposes.

The SREIR (August 2020) sufficiently discusses foreseeable and significant impacts to water quality, including impacts from produced water reuse for agricultural irrigation, produced water conveyance and disposal in earthen disposal and percolation ponds, and produced water conveyance and disposal in injection wells. Potential Project impacts to water quality are primarily discussed in SREIR Section 4.9, Hydrology and Water Quality. The SREIR properly focuses on correcting the specific CEQA deficiencies identified by the Court of Appeal. Slip Opinion, at p. 140. CEQA does not require that the CEQA process “start anew” or address issues that were resolved, or could have been litigated and resolved, in connection with prior judicial proceedings. See GR-1 – Beyond the Scope of the SREIR. The Modified Judgment upheld the 2015 FEIR against claims raised on appeal, including water quality issues, except for “five areas in which the EIR did not comply with CEQA,” one of which was the “mitigation of water supply impacts.” Slip Opinion, at p. 140. The court did not find that the 2015 FEIR analysis of

potential impacts related to a violation of any water quality standards, waste discharge requirements, a substantial degradation of surface or ground water quality, or a water quality control plan, was deficient.

The SREIR considers potential operational period water quality impacts related to produced water use, including surface or subsurface discharges related to produced water reuse and disposal, produced water reuse for EOR, produced water reuse for agricultural irrigation, produced water conveyance and disposal in earthen disposal and percolation ponds, produced water conveyance and disposal in injection wells, and surface or subsurface discharges related to well stimulation activities. The SREIR (October 2020) has been updated to include a detailed discussion of the regulation, monitoring, and continued scientific investigation of produced water reuse for agricultural irrigation. See SREIR (October 2020), Vol. 1, at 4.9-153–156. For example, the SREIR notes that, according to a report by the State Water Resources Control Board (SWRCB), recycled produced water has been used to irrigate crops in the areas east and north of Bakersfield for more than 30 years, and no studies to date have shown that irrigating food crops with produced water poses any threat to public health. See SREIR (October 2020), Vol. 1, at 4.9-153. The SREIR also states that currently available information, including the February 2020 Food Safety Panel Progress Report and a May 2020 peer-reviewed study by researchers from Duke University and RTI International, have not identified significant health or safety risks from permitted use of produced water for agricultural irrigation, including for a wide range of tree and row crops. See SREIR (October 2020), Vol. 1, at 4.9-156. The SREIR describes various regulatory requirements adopted since 2015 to address produced water disposal, including Central Valley Regional Water Quality Control Board (CVRWQCB) General Orders and other requirements. See SREIR (October 2020), Vol. 1, 4.9-182–184. The SREIR also discusses several recent studies that have investigated the effects of produced water disposal on surface and/or groundwater and human health, including analyses of produced water for agricultural irrigation. See Responses to Comments 0009-124 and 0009-125. These studies provide evidence of the potential of oil and gas activities to violate water quality standard or waste discharge requirements, consistent with the analysis in the 2015 FEIR. The SREIR thus contains a thorough discussion of the potential environmental and human health effects associated with the reuse of produced water for irrigation and domestic use.

0009-49

The comment states that the SREIR must analyze the water quality and related health impacts of re-using oil wastewater because it contains pollutants and chemical components that could be harmful to both the environment and human health.

See Response to Comment 0009-48. As noted in that response, the SREIR contains a thorough discussion of the potential environmental and human health effects associated with the reuse of produced water for irrigation and domestic use.

0009-50

The comment re-states that the SREIR does not adequately analyze the environmental, health, and safety-related impacts of reusing oil wastewater for irrigation and domestic use.

See Response to Comment 0009-48, which explains that the SREIR adequately addresses the Project's foreseeable and significant impacts to water quality, including potential impacts related to the use of produced water for agricultural irrigation.

0009-51

The comment states that the SREIR does not sufficiently analyze the potential surface water and groundwater quality impacts resulting from disposal of produced water to surface ponds and Class II aquifers.

Please see Response to Comment 0009-48. The 2015 FEIR considered potential operational water quality impacts of the Project, including impacts from surface or subsurface discharges related to produced water reuse and disposal, produced water reuse for EOR, produced water reuse for agricultural irrigation, produced water conveyance and disposal in earthen disposal and percolation ponds, produced water conveyance and disposal in injection wells, and surface or subsurface discharges related to well stimulation activities. See SREIR (October 2020), Vol. 1, at 4.9-182–183 and Response to Comment 0009-48. The 2015 FEIR concluded that, with the implementation of mitigation measures and compliance with applicable regulatory standards and requirements, potential impacts to water quality would be less than significant. The SREIR (August 2020) explains that discharges to Class II injection wells are subject to regulation by both the California Geologic Energy Management Division (CalGEM) under the updated UIC regulations and by the State and Regional Water Boards under the Porter-Cologne Act and implementing regulations. See SREIR (August 2020), Vol. 1, 4.9.3, Regulatory Setting.

The new UIC regulations, which became effective April 1, 2019, require, among other things, stronger testing requirements designed to identify potential leaks; increased data requirements to ensure that proposed projects are fully evaluated;

continuous well pressure monitoring; requirements to automatically cease injection when there is a risk to safety or the environment, and requirements to disclose chemical additives for injection wells close to water supply wells. Additionally, produced water percolation and evaporation ponds in the County are regulated by the CVRWQCB, which has issued orders to operators under Cal. Water Code § 13267 requiring submittal of a technical or monitoring program report to assist staff in its assessment of potential water quality impacts resulting from discharge. The SREIR contains a detailed discussion of these requirements in Section 4.9.3, Regulatory Setting. See SREIR (October 2020), Vol. 1, at 4.9-147–153.

The SREIR considers new information concerning the implementation of the UIC program, including aquifer exemptions and “surface expressions” of hydrocarbons as defined in the April 2019 amendments to the state UIC regulations. In March 2020, CalGEM provided the U.S. Environmental Protection Agency (EPA) with updated information concerning the process of clarifying the locations and extent of exempted aquifers under the UIC program that could be used for produced water and oil and gas disposal. The update indicates that the state is continuing to protect groundwater as required by the UIC program and federal law through an aquifer exemption work plan with the EPA. CalGEM maintains a tracking website for surface expressions that indicates that all such expressions, including incidents in the Project Area since April 2019, have been contained and are not near population centers or sources of drinking water. The SREIR (October 2020) has been updated to include a discussion of the status of the aquifer exemption program, including aquifer exemption applications that have been approved or are under review by the EPA. See SREIR (October 2020), Vol. 1, at 4.9-183.

The SREIR also discusses surface and groundwater contamination from “surface expressions” that are prohibited by CalGEM and that have occurred in the Project Area. Since April 2019, several suspected or confirmed surface expressions have occurred, primarily in the Cymric, Midway Sunset, and McKittrick oil fields in the Project Area. In September 2020, the online CalGEM tracking summary of surface expressions stated that “The releases in the Cymric, Midway Sunset, and McKittrick oil fields in Kern County are not near population centers or sources of drinking water. All of the expressions are contained and are clustered in a few areas.” The CalGEM tracking website contains information demonstrating that state agencies have successfully implemented regulatory responses to all identified surface expressions since the April 2019 UIC regulations were amended, including the most recent reported expression in the Midway Sunset oil field that occurred in August 2015. There is no evidence that prohibited surface expressions from oil and gas underground injection projects have or would be likely to cause significantly greater water quality impacts than considered in the SREIR or the 2015 FEIR.

The SGMA requires that a GSP avoid “undesirable results” to groundwater, which includes the “significant and unreasonable degradation of water quality.” See Cal. Water Code § 10720 et seq. The SREIR reviewed and considered the discussion of water quality and oil and gas operations, including UIC program discharges and potential surface water quality impacts provided in each of the GSPs and Management Area Plans adopted by a GSA within the Project Area. This analysis includes the GSPs adopted for the Tule Subbasin, the Tulare Lake Subbasin, and the Cuyama Valley Basin for groundwater basins that are located almost entirely outside of the Project Area, the five GSPs adopted for the Kern County Subbasin, and 15 Management Area Plans adopted within the Kern Groundwater Authority GSP. The adopted GSPs and Management Area Plans provide substantial evidence that oil and gas activities involving the extraction, use, and disposal of produced water occur outside of aquifers subject to the SGMA. The GSPs and Management Area plans specifically exclude locations where producible hydrocarbons occur and exempt aquifers under the UIC program from the lateral and vertical boundaries of the groundwater subbasin subject to SGMA. The GSPs and Management Area plans also discuss historical areas of surface oil and gas operational discharges, including over 260 point sources and 77 active or open sites in the Project Area. Several of the plans discuss the potential discharge of injection fluids into aquifers that have not been exempted under the UIC. This information has been updated by CalGEM in a March 2020 letter to the EPA.

A lawsuit challenging the CalGEM-EPA aquifer exemption work plan was dismissed in 2016 by the California Superior Court, and the decision was upheld by the California Court of Appeal in 2018. There is no evidence that oil and gas activities as discussed in the adopted GSPs and Management Area Plans for the Project Area; potential impacts related to the ongoing aquifer exemption work plan being implemented by CalGEM and the EPA; or potential impacts from subsurface injections for EOR and wastewater disposal and other purposes discussed in the 2015 FEIR and the SREIR could result in significant new impacts from the migration of pollutants into groundwater aquifers that are being or could be used for agriculture and domestic purposes other than the impacts that were considered in the 2015 FEIR.

The comment also states that the Revised Water Assessment in the 2015 FEIR did not analyze the potential water quality impacts from reuse of produced water for irrigation or other purposes. The SREIR (October 2020) adequately addresses the Project’s foreseeable and significant impacts to water quality from produced water disposal, including the use of produced water for agricultural irrigation. Please see Response to Comment 0009-48. The SREIR thus contains a thorough discussion of the potential environmental and human health effects of produced water for irrigation and other uses, as well as the potential impacts to surface water and groundwater quality from disposal of produced water to surface ponds and Class II wells.

0009-52

The comment states that the SREIR does not adequately analyze the potential impacts of oil wastewater storage and disposal on water quality or agricultural resources, citing statements on risk of exposure of agricultural soils to potentially hazardous materials in wastewater from SREIR (August 2020), Vol. 1, at 4.2-35.

The Water Quality and Hydrology section adequately addresses the Project's foreseeable and significant impacts on water quality. See SREIR (October 2020), Vol. 1, at 4.9; see also Response to Comment 0009-48. The SREIR thus contains a thorough discussion of the potential effects of oil and wastewater storage and disposal on water quality and agricultural resources. The statements cited in this comment are taken from the analysis of Impact 4.2-5, conversion of farmland to non-agricultural use, and refer to the possibility that use of drilling pits, and sump spills, may contribute to conversion of agricultural land by increasing the risk of exposure of agricultural soils to potentially hazardous chemicals and materials. Drilling pits and sumps are subject to requirements to prevent potential impacts to groundwater, under the SWRCB's Statewide General Order (No. 2003-0003-DWQ) for low-threat discharges to land or Waste Discharge Requirements issued by the CVRWQCB. See SREIR (August 2020), Vol. 1, at 4.2-35. In most cases, drilling sumps are not permitted on agricultural lands and a closed-loop system is used instead. MM 4.9-3 provides that all drilling operations must either use a closed loop system to avoid discharges of drilling muds and fluids, or obtain coverage under the SWRCB General Order, individual Waste Discharge Requirements, or a general order issued by the CVRWQCB. As revised, MM 4.8-6.C requires closed-loop systems to be used, except in compliance with SWRCB or CVRWQCB requirements for pits and sumps as provided in MM 4.9-3. See SREIR (October 2020), Vol. 1, at 4.18-41. New MM 4.2-1.C was added to the SREIR (October 2020) to provide mitigation for agricultural land conversion impacts. It provides that, on defined agricultural lands, "Siting and construction of new disposal ponds are prohibited." See SREIR (October 2020), Vol. 1, at 4.2-31.

0009-53

The comment states that the SREIR does not sufficiently analyze the impacts of oil wastewater storage and disposal on groundwater, air, and soil quality, as well as indirect health impacts such as drinking water or consuming agricultural products contaminated with chemicals found in produced water. The comment also states that oil wastewater injection has increased significantly, and that the SREIR does not sufficiently analyze water quality and related health impacts from such wastewater injection.

As explained in Response to Comment 0009-48, the water quality impact analysis in the SREIR (August 2020) adequately addresses the Project's foreseeable and significant impacts on water quality, including surface or subsurface discharges related to produced water reuse and disposal, produced water reuse for agricultural irrigation, produced water conveyance and disposal in earthen disposal and percolation ponds, and produced water conveyance and disposal in injection wells. The SREIR (October 2020) has also been updated to addresses the potential health impacts of produced water use for agricultural irrigation. See SREIR (October 2020), Vol. 1, at 4.9-156. The SREIR also discusses recent studies regarding the effects of produced water disposal on surface and/or groundwater, and on human health, and considers new information concerning the implementation of the federal UIC program, including aquifer exemptions and "surface expressions" of hydrocarbons caused by injection operations. Please see Responses to Comments 0009-48, 0009-51, 0009-124, and 0009-125. Please see Responses to Comments 0008-62 and 0006-8 for a discussion of the SREIR's analysis of air quality emissions from mud sumps, pits, and ponds. The SREIR thus contains a thorough discussion of potential environmental and health effects of oil and wastewater storage and disposal. The comment states that "oil wastewater injection has increased significantly." This statement is contradicted by recent data provided by CalGEM in the agency's "2018 Report on California Oil and Gas Production Statistics" (October 2019), which shows annual injection volumes for water disposal operations from 2014 to 2018. Report available at https://www.conservation.ca.gov/calgem/pubs_stats/annual_reports/Pages/annual_reports.aspx (DOC 2019). The report indicates that annual wastewater injection volumes have generally decreased since 2015 (although the 2018 volumes increased slightly over the 2017 volumes). In 2015, the annual injection rate for wastewater disposal activities was 919.8 million barrels, while the annual injection rate for 2018, the most recent year for which compiled data were available, was 718.8 million barrels.

0009-54

The comment states that the Ordinance appears inconsistent with some provisions of the Kern County General Plan (General Plan) because the SREIR does not ensure adequate water supplies for residential, industrial, and agricultural users or for projected growth. The comment also alleges inconsistency with the General Plan because the SREIR approves a new "high-consumptive use" without verifying adequate water sources other than local groundwater.

These issues were both raised and addressed in the 2015 FEIR, and neither the SREIR (August 2020) nor the SREIR (October 2020) provided “significant new information” that would require analysis in the SREIR. The Kern County Board of Supervisors unanimously approved the Project and certified the 2015 FEIR on November 9, 2015. Several lawsuits were filed challenging the 2015 FEIR. On February 25, 2020, the Court of Appeal issued a decision upholding the 2015 FEIR against all claims except for five areas in which the 2015 FEIR did not comply with CEQA: (1) mitigation of water supply impacts; (2) impacts from PM_{2.5} emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well HRA. See Slip Opinion, at p. 140.

On June 12, 2020, the Superior Court issued a Modified Judgment consistent with the Court of Appeal’s decision. The court directed that the 2015 FEIR certification and approval of the Ordinance be set aside, and a supplemental CEQA review prepared correcting the five defects before reapproving the Ordinance. Slip Opinion, at p. 140. The Court of Appeal’s decision and the Modified Judgment are consistent with controlling caselaw, which provides that, where a court decision requires the lead agency to correct specific defects in an EIR, the agency need not start the EIR process anew and is required only to address those specific issues identified by the court for correction. See GR-1 – Beyond the Scope of the SREIR. In the case of the SREIR, the issues raised by the comment about consistency of the General Plan with respect to the water supply analysis are not within the scope of the water supply-related defects identified in the Court of Appeal’s decision and Modified Judgment. The issue of consistency with the General Plan that had been raised in the 2015 FEIR proceedings was adjudicated by the Superior Court, and was not appealed to the Court of Appeal, although it could have been. The SREIR is not required to include of further analysis of this issue.

General Plan Policy 41 does not apply to the Project. General Plan Policy 41, “[r]eview development proposals to ensure adequate water is available to accommodate projected growth,” was specifically addressed in the Superior Court’s decision. The court held that “the County could properly view the project [as] an ‘energy project proposal,’ not a ‘development’ proposal” as that designation is used in General Plan policy #41.” Modified Judgment, at 12. The court’s holding on this issue was not appealed. The 2015 FEIR addressed the General Plan policies cited in this comment. See SREIR (October 2020), Vol. 5, 7.2.4, Responses to Comments 44-141 and 44-160 through 44-165. Those responses explain that, with respect to the 2015 FEIR’s water supply analysis, there was no inconsistency with the General Plan: a lead agency has discretion to balance potentially competing goals and policies within a general plan, and that was done in the 2015 FEIR in making the determination that the Project was consistent with both the Kern County and the Metropolitan Bakersfield General Plans. The relevant standard to determine consistency with an applicable land use plan is whether the project is “in agreement or harmony with the terms of the applicable plan.” *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656, 678; see also *Friends of Lagoon Valley v. City of Vacaville* (2007) 154 Cal.App.4th 807, 817; *Sequoyah Hills Homeowners Assn. v. City of Oakland* (1993) 23 Cal.App.4th 704, 718. “Because policies in a general plan reflect a range of competing interests, the governmental agency must be allowed to weigh and balance the plan’s policies when applying them, and it has broad discretion to construe its policies in light of the plan’s purposes. [Citations.]” *Napa Citizens for Honest Government v. Napa County Bd. of Supervisors* (2001) 91 Cal. App. 4th 342, 386.

The Land Use and Planning chapter of the 2015 FEIR provides detailed analysis showing how the Revised Amended Ordinance is consistent with more than 400 of the applicable goals, policies, and implementation measures in the Kern County and Metropolitan Bakersfield General Plans. See SREIR (October 2020), Vol. 3, at 4.10-91–173. To the extent that the Project conflicts with any specific policy in the General Plan, that policy can be weighed and balanced against the many other policies that approval of the Project strongly furthers. Reviewing courts have determined that general plan policies are not mandatory directives but rather general policies that may be weighed and balanced against other policies in the plan. See *Corona-Norco Unified Sch. Dist. v. City of Corona*, 17 Cal.App.4th 985, 998 (1993); *Lagoon Valley*, 154 Cal.App.4th at 822-821. However, the Project does not violate the policies at issue. The first two policies cited apply only to “development proposals.” As used in the General Plan, “development proposals” refer to urban and suburban development such as residential, commercial, and industrial uses, whereas oil and gas activities are referred to as “energy project proposals.”

The comment also states that the SREIR conflicts with the General Plan provision that precludes a new “high consumptive use” of water “without verifying that the County can support it with sources other than local groundwater,” and that the Project is a “high consumptive use.” The General Plan’s Land Use Element, Section 1.10.6 (Surface Water and Groundwater), at 69 provides: “New high consumptive water uses, such as lakes and golf courses, should require evidence of additional verified sources of water other than local groundwater. Other sources may include recycled stormwater or wastewater.” Unlike a lake or a golf course, oil and gas activities do not alone constitute a “high consumptive use” of water. This provision of the General Plan is intended to consider water uses that are inherently high consumers of water, rather than consumption based on many aggregated individual water consumers, as the illustrative examples demonstrate. These issues were not required to be addressed in the SREIR because they do not constitute “changed circumstances” or “new information” requiring supplemental environmental review under CEQA. A supplemental EIR is not required unless:

- Substantial changes to the proposed project, or to the circumstances under which the project is undertaken, will require major revisions of the prior EIR due to new or substantially more severe environmental impacts; or
- New information of substantial importance is available, which was not known and could not have been known when the prior EIR was certified, shows that the project will have new or substantially more severe environmental impacts; or new information of substantial importance is available, which was not known and could not have been known when the prior EIR was certified, shows that mitigation measures or alternatives previously found infeasible, or considerably different from those analyzed in the prior EIR, would substantially reduce significant impacts, but the project proponents decline to adopt the mitigation measure or alternative. Cal. Pub. Res. Code § 21166; CEQA Guidelines § 15162.

The California Supreme Court explained that the provisions governing supplemental CEQA review “are designed to balance CEQA’s central purpose of promoting consideration of the environmental consequences of public decisions with interests in finality and efficiency.” *Friends of College of San Mateo Gardens v. San Mateo County Community College Dist.* (2016) 1 Cal.5th 937, 949.

The comment does not raise either substantial changes in circumstances or new information requiring supplemental analysis under Cal. Pub. Res. Code § 21166 and CEQA Guidelines § 15162. These impacts were addressed by the 2015 FEIR.

0009-55

This comment summarizes various provisions of the CEQA Guidelines and quotes various related court decisions.

These summaries and quotes are noted and will be considered by County decisionmakers. As this comment correctly notes, CEQA requires the SREIR to consider a reasonable range of potentially feasible alternatives that will foster informed decisionmaking and public participation. The SREIR (October 2020) meets this standard by analyzing seven potentially feasible alternatives to the Project, including the required “No Project” alternative. See SREIR (October 2020), Vol. 1, at 6-21–48. The SREIR thus contains a thorough discussion of a reasonable range of Project alternatives.

0009-56

This comment asserts that the SREIR’s alternatives analysis is flawed because it is purportedly based on improper project purposes.

This comment does not specify any particular project purpose, nor does it explain the basis for this assertion. In response to this comment’s assertion that the SREIR (August 2020) failed to analyze additional alternatives, the SREIR (October 2020) has been revised to analyze a seventh alternative—i.e., the 2,500-Foot Setback Alternative. See SREIR (October 2020), Vol. 1, at 6-34. The SREIR (October 2020) determined that the 2,500-Foot Setback Alternative would not result in less severe environmental impacts as compared to the Project, and that it could exacerbate the Project’s air quality impacts by resulting in high-emission horizontal drilling activities that would not occur under Project conditions. The SREIR thus contains a thorough discussion of a reasonable range of Project alternatives.

0009-57

This comment asserts that the discussion of the Fewer Wells Within the Project Footprint Alternative set forth in the SREIR (August 2020) is inadequate because the health studies on which the County relied in 2015 were purportedly inadequate and because the SREIR (August 2020) failed to consider studies published since 2015 that purport to identify health risks at distances greater than the setbacks required under the Ordinance.

Please see Response to Comment 0009-62 and the Health Studies Chart attached to this Response to Comments set. This comment does not identify the name of any such study. However, a full discussion of the research discussing potential health effects of proximity to oil and gas wells has been incorporated into the Air Quality, Noise, and Hydrology sections of the SREIR (October 2020) to provide full public disclosure of the Project’s potential impacts on the environment. See SREIR (October 2020), Vol. 1, at 4.3-28–41, 4.9-182–188, and 4.12-8–10. This discussion includes summaries of numerous reports regarding potential impacts from oil and gas operations, including those referenced in other comments. The Health Studies Chart includes an expanded discussion of the health studies and reports (including their methods, findings and conclusions) as well as responses tailored to such studies and reports. The SREIR thus contains a thorough discussion of elevated risks associated with oil and gas wells.

0009-58

This comment correctly explains that County decisionmakers may consider takings liability when considering the Project and its alternatives. This comment asserts that the SREIR (August 2020) fails to adequately explain how takings liability concerns apply to a Project alternative that would require new oil and gas wells to be set back 2,500 feet from sensitive receptors.

To increase clarity in the document, the discussion of takings liability associated with a 2,500-foot setback requirement has been updated in the SREIR (October 2020), including a discussion of setback requirements considered or required in other jurisdictions and litigation challenges to such setbacks. See SREIR (October 2020), Vol. 1, at 6-42–45. This new discussion also considers measures that could be taken to minimize takings liability risks, such as amortization, and the legal uncertainty regarding such measures in the context of oil and gas activities. The SREIR thus contains a thorough discussion of the takings liability risks associated with Project alternatives that would impose a 2,500-foot setback.

0009-59

This comment claims that the SREIR (August 2020) should have considered a stand-alone 2,500-foot setback alternative rather than only considering such a setback in combination with a cap on the number of wells. In response to this comment, the discussion of Project alternatives has been updated in the SREIR (October 2020) to include full analysis of the stand-alone 2,500-Foot Setback Alternative, which determines that such an alternative would not result in less severe environmental impacts than would the Project and could exacerbate air quality impacts by incentivizing more high-emission horizontal drilling activities.

See SREIR (October 2020), Vol. 1, at 6-34–45.

0009-60

This comment correctly notes that one of the Project objectives is “to create a local permit for oil and gas activities so that County development standards and protective mitigation measures can be implemented for the purpose of reducing or eliminating potential significant adverse environmental impacts, to the extent feasible, of future oil and gas activities, thereby, ensuring that current County ordinances implement the Board of Supervisor’s policies to protect health, safety and general welfare of communities, residents, and visitors.” However, this comment wrongly states that the SREIR (August 2020) discussion of the Fewer Wells within Project Footprint Alternative misstates this objective when, in fact, it merely quotes it in part, as clearly indicated by punctuation. The development standards proposed by the Fewer Wells within the Project Footprint Alternative cannot legally be implemented without exposing the County to unreasonable takings liability.

This comment also asserts that the SREIR fails to adequately explain why a 2,500-foot setback requirement would not promote the Project objective of “reducing or eliminating significant adverse environmental impacts” and “protect[ing] the health, safety, and general welfare of communities, residents, and visitors.” The SREIR has been updated to add a discussion explaining why a 2,500-foot setback requirement would not reduce or eliminate any significant adverse environmental impacts to a greater extent than would the Project in light of the Project’s mitigation measures that ensure adequately protective setbacks for all wells in proximity to sensitive receptors. See SREIR (October 2020), Vol. 1, at 6-36–42. This updated discussion also explains that the 2,500-foot setback requirement could in fact result in higher criteria air pollutant and greenhouse gas emissions due to the fact that more horizontal drilling may occur. The SREIR thus includes a thorough discussion of this alternative’s relationship to the Project objective identified in this comment.

0009-61

This comments disagrees with the conclusion in the SREIR (August 2020) that the Fewer Wells within Project Footprint Alternative would not further the Project objective of promoting new oil and gas development within areas large enough to meet generous projections of foreseeable need without impairing the economic strength derived from mineral resources.

This alternative was not carried forward for analysis because, among other reasons, it would impair the economic strength derived from mineral resources by capping the number of permitted wells and by imposing setbacks at a distance that could preclude mineral access altogether. See SREIR (October 2020), Vol. 1, at 6-14. Thus, the SREIR explains why this alternative would not promote the subject objective to the same extent as would the Project. It should also be noted that the setback required by this alternative could encourage more horizontal drilling than would otherwise occur under Project conditions, which could result in greater criteria pollutant and greenhouse gas emissions than would the Project. See SREIR (October 2020), Vol. 1, at 6-36–42. Please see Responses to Comments 0061-85 and 0059-40 for additional information regarding how certain setback alternatives that might result in greater horizontal drilling may also result in greater emissions of criteria pollutants and greenhouse gases, and therefore would not avoid or substantially reduce significant environmental impacts as compared to the Project. As also explained in the SREIR (October 2020), this alternative’s 2,500-foot setback would not be

more protective of residential developments than the Project because MM 4.3-5 and MM 4.12-1 would ensure adequate distance between wells and sensitive receptors to avoid significant health risks and noise impacts. See SREIR (October 2020), Vol. 1, at 6-36–42.

0009-62

This comment concerns the SREIR's analysis of the health justification of oil and gas well setbacks, stating that research shows that close proximity to oil and gas wells results in elevated risk of adverse health effects.

Please see GR-6 – Health Risk Assessments, Responses to Comments 0014-2 and 0014-7, and the Health Studies Chart attached to this Response to Comments set. As explained in GR-6, three HRAs were completed for the Project (two single-well HRAs and a multi-well HRA). The single-well Revised HRA contained assessed health risk from both construction and operational emissions in terms of cancer risk and acute and chronic health hazards. See SREIR (October 2020), Vol. 2, Appendix B. For non-cancer risk, which the majority of the health studies and reports submitted by the commenter concern, the Revised HRA found that no acute or chronic non-cancer hazards for either an oil processing facility or natural gas processing facility would exceed the regulatory threshold hazard of 1.0.

In addition to the HRAs, the SREIR (October 2020) thoroughly discloses both (1) health effects associated with exposure to criteria pollutants and toxic air contaminants; and (2) summaries of scientific research published subsequent to the certification of the 2015 FEIR that investigated health effects associated with proximity to unconventional oil and natural gas activities. These additional analyses in the SREIR (October 2020) were made to provide full public disclosure of the Project's potential impacts to human health and the environment. See SREIR (October 2020), Vol. 1, at 4.3-28–41. A discussion of the research on potential health effects of proximity to oil and gas wells has been incorporated into the Air Quality, Noise, and Hydrology and Water Quality sections of the SREIR (October 2020). See SREIR (October 2020), Vol. 1, at 4.3-28–41, 4.9-182–188, 4.12-8–10.

In addition to the SREIR (October 2020)'s summaries of health studies and reports, the Health Studies Chart includes an expanded discussion of each study and report (including their methodologies, findings and conclusions), as well as responses specifically tailored to each study and report. The chart demonstrates that the health effects investigated in each study were qualitatively disclosed in the 2015 FEIR and the SREIR (October 2020) and that, in most cases, the substances of concern referenced in the studies were accounted for in the HRAs. The Health Studies Chart attached to this Response to Comments set notes that the health studies summarized in the SREIR (October 2020) will be considered by County decisionmakers, but that no present information that calls into question the adequacy of the SREIR's analyses of health impacts from oil and gas development activities, the HRAs, or setback mitigation measures. None of the studies demonstrate that new mitigation measures beyond those already incorporated into the SREIR (October 2020) would substantially reduce impacts of the Project. Nor do the studies demonstrate that Alternative 7, 2,500-foot Setback Alternative would avoid or substantially lessen any of the Project's significant environmental impacts. The SREIR (October 2020) has been updated to explain why setback mitigation measures are designed to adequately protect sensitive receptors and why an alternative that requires a 2,500-foot setback would not result in less severe environmental impacts than would the Project. See SREIR (October 2020), Vol. 1, 6-36–42.

0009-63

This comment is noted and will be considered by County decisionmakers. The multi-well HRA prepared for the Project was recirculated and discussed in the SREIR (October 2020). See SREIR (October 2020), Vol. 1, at 4.3-143–160. With respect to Phyllis Fox's comments on the Multi-Well HRA, please see Responses to Comments 0008-58 through 0008-62. With respect to the court's statements regarding the Multi-Well HRA, please see Responses to Comments 0009-31 through 0009-33.

0009-64

This comment is noted and will be considered by County decisionmakers. With respect to Phyllis Fox's comments on the Multi-Well HRA, please see Responses to Comments 0008-58 through 0008-62. Please also see Responses to Comments 0009-31 through 0009-33.

0009-65

The comment states that research shows that close proximity to oil and gas wells results in elevated risk of various health effects.

Please see Response to Comment 0009-62 and the Health Studies Chart attached to this Response to Comments set. The SREIR (October 2020) fully discloses that close proximity to oil and gas wells may result in exposure to toxic contaminants in

air and/or water; that many studies have investigated whether there is a link between oil and gas drilling and various health effects, such as asthma and other respiratory diseases, adverse birth outcomes, cancer, neurodevelopmental effects, cardiovascular disease, endocrine disruption, mental health effects, skin diseases, leukemia, migraines, fatigue, and throat irritation; and that these impacts may especially affect low-income communities and communities of color located in close proximity to oil and gas operations. See SREIR (October 2020), Vol. 1, at 4.3-18–36, 134–150. A general discussion of various studies on this topic is presented in the SREIR (October 2020). See SREIR (October 2020), Vol. 1, 4.3-18–36. The Health Studies Chart includes an expanded discussion of the health studies and reports; their methods, findings, and conclusions; and responses tailored to the following studies and reports referenced in this comment: Tran et al. (2020), Gonzalez et. al. (2020), Shonkoff and Hill (2019), and Shamasunder (2018).

0009-66

The comment states that research shows close proximity to oil and gas wells results in elevated risk of various health effects.

Please see Responses to Comments 0009-62 and 0061-34, and the Health Studies Chart attached to this Response to Comments set. A full discussion of the research concerning potential health effects of proximity to oil and gas wells has been incorporated into the Air Quality section of the SREIR (October 2020) to provide full public disclosure of the Project's potential impacts to the environment. See SREIR (October 2020), Vol. 1, at 4.3-28–41. This discussion includes summaries of numerous reports regarding potential health impacts from oil and gas operations, including those referenced in the comment. The Health Studies Chart includes an expanded discussion of the health studies and reports; their methods, findings, and conclusions; and responses tailored to the following studies referenced in this comment: Garcia-Gonzales (2019), Lim and John (2020), McKenzie et al. (2018a), Haley et al. (2016).

The DiGiulio and Jackson (2016) study referenced in this comment found high concentrations of benzene in raw natural and associated gas. This study was added to the revised Section 4.9, Hydrology and Water Quality, of the SREIR (October 2020). See SREIR (October 2020), Vol. 1, at 4.9-185. DiGiulio and Jackson (2016) studied impacts on underground drinking water sources and domestic wells from production well stimulation in Pavillion, Wyoming. See SREIR (October 2020), Vol. 1, at 4.9-185. This study is not geographically or geologically relevant to oil and gas activities occurring in Kern County, considering the different geological and hydrological characteristics that may exist between Pavillion, Wyoming, and Kern County, or the specific oil and gas practices and mitigation measures required under the Project. See SREIR (October 2020), Vol. 1, at 4.9-185. As noted in the revised Section 4.3, Air Quality, of the SREIR (October 2020), present-day hydraulic fracturing practice and geologic conditions in California differ from those in other states, and therefore, recent experiences with hydraulic fracturing in other states do not necessarily apply to California. See SREIR (October 2020), Vol. 1, at 4.3-29. Thus, reports or studies that do not directly address California oil and gas operations are less likely to support the link between health effects and oil and gas operations in Kern County. See SREIR (October 2020), Vol. 1, at 4.3-29. Please see Response to Comment 0061-34 for further sources confirming that California hydraulic fracturing practices, geologic conditions, and regulatory requirements differ significantly from those in other states, and therefore the findings and conclusions of DiGiulio and Jackson (2016) regarding hydraulic fracturing practices in Pavillion, Wyoming, do not necessarily apply to current hydraulic fracturing operations and related health effects in California.

0009-67

The comment states that research shows close proximity to oil and gas wells results in elevated risk of various health effects. Please see Response to Comment 0009-62 and the Health Studies Chart attached to this Response to Comments set.

The SREIR (October 2020) fully discloses that close proximity to oil and gas wells may result in exposure to toxic contaminants in air and/or water; that many studies have investigated whether there is a link between oil and gas drilling and various health effects, such as asthma and other respiratory diseases, adverse birth outcomes, cancer, neurodevelopmental effects, cardiovascular disease, endocrine disruption, mental health effects, skin diseases, leukemia, migraines, fatigue, and throat irritation; and that these impacts may especially affect low-income communities and communities of color located in close proximity to oil and gas operations. See SREIR (October 2020), Vol. 1, at 4.3-18–36, 134–150. The Health Studies Chart includes an expanded discussion of the health studies and reports; their methods, findings, and conclusions; and responses tailored to each study and report, including the City of Los Angeles Department of Public Works, Office of Petroleum and Natural Gas Administration and Safety, Oil and Gas Health Report (City of Los Angeles 2019) referenced in this comment.

0009-68

The comment states that research shows close proximity to oil and gas wells results in elevated risk of various health effects that support imposition of a 2,500-foot setback from new oil and gas wells permitted by the Project.

Please see Response to Comment 0009-62 and the Health Studies Chart attached to this Response to Comments set. A full discussion of the research concerning potential health effects of proximity to oil and gas wells has been incorporated into the SREIR (October 2020) to provide full public disclosure of the Project's potential impacts to the environment. See SREIR (October 2020), Vol. 1, at 4.3-28-41, 4.9-182-188, 4.12-8-10. This discussion includes a summary of numerous reports regarding potential health impacts from oil and gas operations, including those referenced in the comment. The Health Studies Chart includes an expanded discussion of the health studies and reports; their methods, findings, and conclusions, as well as responses tailored to the following studies and reports referenced in this comment: Shonkoff and Hill (2019), Wong (2017), Webb et al. (2017), and Deziel et al. (2020).

0009-69

The comment states that research shows close proximity to oil and gas wells results in elevated risk of various health effects that support imposition of a 2,500-foot setback from new oil and gas wells permitted by the Project.

Please see Response to Comment 0009-62 and the Health Studies Chart attached to this Response to Comments set. A full discussion of the research concerning potential health effects of proximity to oil and gas wells has been incorporated into the Air Quality section of the SREIR (October 2020) to provide full public disclosure of the Project's potential impacts to the environment. See SREIR (October 2020), Vol. 1, at 4.3-28-41. This discussion includes a summary of numerous reports regarding potential health impacts from oil and gas operations, including those referenced in the comment. None of the reports referenced in this comment suggest that new mitigation, beyond the mitigation measures described in Section 4.3 of the SREIR (October 2020), is necessary to mitigate potential health impacts from the Project. The Health Studies Chart includes an expanded discussion of the health studies and reports; their methods, findings, and conclusions; and responses tailored to the following reports referenced in this comment: Gorski and Schwartz (2019), Concerned Health Professionals of New York, & Physicians for Social Responsibility (2019), and Hays and Shonkoff (2016).

0009-70

The comment states that research shows close proximity to oil and gas wells results in elevated risk of various health effects.

Please see the Health Studies Chart attached to this Response to Comments set. The SREIR (October 2020) fully discloses that close proximity to oil and gas wells may result in exposure to toxic contaminants in air and/or water, that many studies have investigated whether there is a link between oil and gas drilling and various health effects, such as asthma and other respiratory diseases, adverse birth outcomes, cancer, neurodevelopmental effects, cardiovascular disease, endocrine disruption, mental health effects, skin diseases, leukemia, migraines, fatigue, and throat irritation, and that these impacts may especially affect low-income communities and communities of color located in close proximity to oil and gas operations. See SREIR (October 2020), Vol. 1, at 4.3-18-36, 134-150. The Health Studies Chart attached to this Response to Comments set includes an expanded discussion of the health studies and reports; their methods, findings, and conclusions; and responses tailored to the studies referenced in the subsequent comments.

0009-71

The comment states that research shows close proximity to oil and gas wells results in elevated risk of various health effects, particularly adverse birth outcomes.

Please see Responses to Comments 0009-62 and 0061-34, and the Health Studies Chart attached to this Response to Comments set. The SREIR (October 2020) fully discloses that close proximity to oil and gas wells may result in exposure to toxic contaminants in air and/or water; that many studies have investigated whether there is a link between oil and gas drilling and various health effects, such as asthma and other respiratory diseases, adverse birth outcomes, cancer, neurodevelopmental effects, cardiovascular disease, endocrine disruption, mental health effects, skin diseases, leukemia, migraines, fatigue, and throat irritation; and that these impacts may especially affect low-income communities and communities of color located in close proximity to oil and gas operations. See SREIR (October 2020), Vol. 1, at 4.3-18-36, 134-150. The Health Studies Chart attached to this Response to Comments set includes an expanded discussion of the health studies and reports; their methods, findings, and conclusions; and responses tailored to the following studies referenced in this comment: Gonzalez et al. (2020), Tran et al. (2020), Hill (2018), McKenzie et al. (2019), Caron-Beaudoin et al. (2018), Currie et al. (2017), Whitworth et al. (2017), Whitworth et al. (2018), and Casey et al. (2016).

The Apergis et al. (2019) study referenced in this comment concerns the impact of shale gas and oil hydraulic fracturing wells on infants' health at birth in Oklahoma. It concluded that the closer the mother's residence at birth to hydraulic fracturing wells, the more infants had negative health experiences, and that results might be explained through the impact of hydraulic fracturing activities on the drinking quality index. Please see Response to Comment 0061-34 for additional sources confirming

that California hydraulic fracturing practices, geologic conditions, and regulatory requirements differ significantly from those in other states, and that the findings and conclusions of Apergis et al. (2019) regarding hydraulic fracturing practices in Oklahoma therefore do not necessarily apply to current hydraulic fracturing operations and related health effects in California.

0009-72

The comment states that research shows close proximity to oil and gas wells results in elevated risk of various health effects, particularly asthma and respiratory health effects.

Please see Response to Comment 0009-62 and the Health Studies Chart attached to this Response to Comments set. The SREIR (October 2020) fully discloses that close proximity to oil and gas wells may result in exposure to toxic contaminants in air and/or water; that many studies have investigated whether there is a link between oil and gas drilling and various health effects, such as asthma and other respiratory diseases, adverse birth outcomes, cancer, neurodevelopmental effects, cardiovascular disease, endocrine disruption, mental health effects, skin diseases, leukemia, migraines, fatigue, and throat irritation; and that these impacts may especially affect low-income communities and communities of color located in close proximity to oil and gas operations. See SREIR (October 2020), Vol. 1, at 4.3-18–36, 134–150. The Health Studies Chart includes an expanded discussion of the health studies and reports; their methods, findings and conclusions; as well as responses tailored to the following studies referenced in this comment: Shamasunder et al. (2018), Peng et al. (2018), Willis et al. (2018), and Rasmussen et al. (2016).

0009-73

The comment states that research shows that close proximity to oil and gas wells results in elevated risk of various health effects, particularly cardiovascular disease.

Please see Response to Comment 0009-62 and the Health Studies Chart attached to this Response to Comments set. The SREIR (October 2020) fully discloses that close proximity to oil and gas wells may result in exposure to toxic contaminants in air and/or water; that many studies have investigated whether there is a link between oil and gas drilling and various health effects, such as asthma and other respiratory diseases, adverse birth outcomes, cancer, neurodevelopmental effects, cardiovascular disease, endocrine disruption, mental health effects, skin diseases, leukemia, migraines, fatigue, and throat irritation; and that these impacts may especially affect low-income communities and communities of color located in close proximity to oil and gas operations. See SREIR (October 2020), Vol. 1, at 4.3-18–36, 134–150. The Health Studies Chart includes an expanded discussion of the health studies and reports; their methods, findings, and conclusions; and responses tailored to the following studies referenced in this comment: McKenzie et al. (2018b), Ye et al. (2017), Bard et al. (2014), Harrison (2016), Villeneuve et al. (2013), and Xu et al. (2009).

0009-74

The comment states that research shows close proximity to oil and gas wells results in elevated risk of various health effects, particularly endocrine disruptions.

Please see Responses to Comments 0009-62 and 0061-34, and the Health Studies Chart attached to this Response to Comments set. The SREIR (October 2020) fully discloses that close proximity to oil and gas wells may result in exposure to toxic contaminants in air and/or water; that many studies have investigated whether there is a link between oil and gas drilling and various health effects, such as asthma and other respiratory diseases, adverse birth outcomes, cancer, neurodevelopmental effects, cardiovascular disease, endocrine disruption, mental health effects, skin diseases, leukemia, migraines, fatigue, and throat irritation; and that these impacts may especially affect low-income communities and communities of color located in close proximity to oil and gas operations. See SREIR (October 2020), Vol. 1, at 4.3-18–36, 134–150. The Health Studies Chart includes an expanded discussion of the health studies and reports; their methods, findings, and conclusions; and responses tailored to the Bolden et al. (2018) study referenced in this comment.

The Kassotis et al. (2014) study referenced in this comment measured the presence of known or suspected endocrine-disrupting chemicals used for hydraulic fracturing in surface and groundwater samples in a drilling dense region of Colorado and determined that the majority of water samples collected from sites in the heavily drilled area exhibited more endocrine-disrupting chemicals than sites with limited nearby drilling operations. This study was added to the revised Section 4.9, Hydrology and Water Quality of the SREIR (October 2020). See SREIR (October 2020), Vol. 1, at 4.9-184–185. This study is not geographically or geologically relevant to well stimulation treatment activities in Kern County. See SREIR (October 2020), Vol. 1, at 4.9-184–185. As noted in the revised Section 4.3, Air Quality, of the SREIR (October 2020), present-day hydraulic fracturing practice and geologic conditions in California differ from those in other states, and therefore, recent experiences

with hydraulic fracturing in other states do not necessarily apply to California. See SREIR (October 2020), Vol. 1, at 4.3-29. Thus, reports or studies that do not directly address California oil and gas operations are less likely to support the link between health effects and oil and gas operations in Kern County. See SREIR (October 2020), Vol. 1, at 4.3-29. Please see Response to Comment 0061-34 for additional sources confirming that California hydraulic fracturing practices, geologic conditions, and regulatory requirements differ significantly from those in other states, and that the findings and conclusions of Kassotis et al. (2014) regarding hydraulic fracturing practices in Colorado therefore do not necessarily apply to current hydraulic fracturing operations and related health effects in California.

0009-75

The comment states that research shows close proximity to oil and gas wells results in elevated risk of various health effects, particularly health effects related to noise.

Please see Response to Comment 0009-62 and the Health Studies Chart. The SREIR (October 2020) discloses that close proximity to oil and gas wells may result in increased levels of noise and/or vibration. See SREIR (October 2020), Vol. 1, at 4.12-18. The Health Studies Chart includes an expanded discussion of the health studies and reports; their methods, findings, and conclusions; and responses tailored to the following studies referenced in this comment: Hays et al. (2017), Richburg and Slagley (2019), Boyle, et al. (2017), Radtke et al. (2017), and Blair et al. (2018).

0009-76

The comment states that research shows close proximity to oil and gas wells results in elevated risk of various health effects, particularly mental health.

Please see the Health Studies Chart attached to this Response to Comments set. The SREIR (October 2020) fully discloses that close proximity to oil and gas wells may result in exposure to toxic contaminants in air and/or water; that many studies have investigated whether there is a link between oil and gas drilling and various health effects, such as asthma and other respiratory diseases, adverse birth outcomes, cancer, neurodevelopmental effects, cardiovascular disease, endocrine disruption, mental health effects, skin diseases, leukemia, migraines, fatigue, and throat irritation; and that these impacts may especially affect low-income communities and communities of color located in close proximity to oil and gas operations. See SREIR (October 2020), Vol. 1, at 4.3-18–36, 134–150. The Health Studies Chart includes an expanded discussion of the health studies and reports; their methods, findings, and conclusions; and responses tailored to the following studies referenced in this comment: Casey et al. (2019), Casey et al. (2018), and Sangaramoorthy et al. (2016).

0009-77

The comment states that research shows close proximity to oil and gas wells results in elevated risk of various adverse health effects not discussed in subsequent comments above.

Please see Response to Comment 0009-62 and the Health Studies Chart attached to this Response to Comments set. The SREIR (October 2020) fully discloses that close proximity to oil and gas wells may result in exposure to toxic contaminants in air and/or water; that many studies have investigated whether there is a link between oil and gas drilling and various health effects, such as asthma and other respiratory diseases, adverse birth outcomes, cancer, neurodevelopmental effects, cardiovascular disease, endocrine disruption, mental health effects, skin diseases, leukemia, migraines, fatigue, and throat irritation; and that these impacts may especially affect low-income communities and communities of color located in close proximity to oil and gas operations. See SREIR (October 2020), Vol. 1, at 4.3-18–36, 134–150. The Health Studies Chart includes an expanded discussion of the health studies and reports; their methods, findings, and conclusions; and responses tailored to the following studies referenced in this comment: Denham et al. (2019), McKenzie et al. (2017), Weinberger et al. (2017), Tustin et al. (2016), Jemielita et al. (2015), and Paulik (2018).

0009-78

This comment contends that a 2,500-foot setback would protect communities that are disproportionately burdened by environmental impacts, specifically poorer communities and communities of color.

The SREIR (October 2020) was updated to include full analysis of the stand-alone 2,500-Foot Setback Alternative. See SREIR (October 2020), Vol. 1, at 6-34–45. This updated analysis finds that this new alternative would not result in less severe environmental impacts than would the Project and could exacerbate air quality impacts by incentivizing more high-emission horizontal drilling activities. Economic or social factors may contribute to the environmental impacts of a project or may contribute to determinations of the significance of impacts; however, they do not constitute impacts in themselves. CEQA Guidelines §§ 15064(e), 15131(b), 15382; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th

1184, 1213. The SREIR (October 2020) was also updated to include an analysis of Kern County census tract five-year American Community Survey (ACS) demographic and poverty data for the period to provide additional context regarding the location of Tier 1 oil and gas activity areas and County demographic and poverty rates. See SREIR (October 2020), Vol. 1, at 6-39–42. The vast majority—i.e., 90 percent—of wells under the Ordinance are projected to be located in Tier 1 lands. This updated analysis determined that the vast majority of wells proposed under the Ordinance are anticipated to be located in areas with a higher proportion of white residents and a lower poverty rate than the County as a whole and non-Tier 1 lands. These results indicate that the activities allowed under the Ordinance, the vast majority of which occur in Tier 1 areas, do not appear to be spatially distributed in a manner that disproportionately focuses future oil and gas environmental impacts on sensitive populations. Even if social and economic impacts were included in CEQA analysis, a 2,500-foot setback would not significantly reduce the Project’s effects.

0009-79

The comment states that drilling in the County disproportionately affects low income and linguistically isolated Hispanic communities.

The SREIR (October 2020) was updated to include full analysis of the stand-alone 2,500-Foot Setback Alternative. See SREIR (October 2020), Vol. 1, at 6-34–45. The SREIR (October 2020) was also updated to include an analysis of Kern County census tract five-year ACS demographic and poverty data for the period to provide additional context regarding the location of Tier 1 oil and gas activity areas and County demographic and poverty rates. See SREIR (October 2020), Vol. 1, at 6-39–42. The vast majority—i.e., 90 percent—of wells under the Ordinance are projected to be located in Tier 1 lands. The total Tier 1 acreage in each census tract was identified to analyze the demographics and poverty data for the locations where the significant majority of all future oil and gas activity will occur. See SREIR (October 2020), Vol. 1, at 6-39. Of the 151 census tracts in Kern County, 31 contain Tier 1 acreage and 120 contain no Tier 1 acreage. See SREIR (October 2020) Tables 6-1 and 6-2 summarize the ACS population, demographic and poverty data for the County as a whole, the 120 census tracts that contain no Tier 1 acreage (the “non-Tier 1 tracts”), and the 31 census tracts that contain Tier 1 acreage (the “Tier 1 tracts”). See SREIR (October 2020), Vol. 1, at 6-41–42. The County’s 151 census tracts (including Non-Jurisdictional areas such as incorporated cities and land owned by state and federal agencies) include about 5,223,940 acres. The non-Tier 1 tracts include about 1,926,762 acres, and the Tier 1 tracts include 3,297,178 acres. As discussed in the 2015 EIR, the total amount of Tier 1 acreage in the County is 206,856 acres. Tier 1 areas overlie about 4 percent of the County and 6 percent of the Tier 1 tracts.

While the County has become increasingly diverse, the latest ACS data do not alter the conclusions from 2015 regarding the populations most impacted by Project activities. According to the ACS 2018 data, the County (including Non-Jurisdictional areas) had an average population of 883,053 people. About 685,717 residents, or 77.65 percent, of the total County population, was located in non-Tier 1 tracts and about 197,336 residents, or 22.34 percent, of the County population, was located in Tier 1 tracts. See SREIR (October 2020). Table 6-1 also shows that the average percentage of the population identified in the ACS data as Hispanic or Latino (of any race), Black or African American, American Indian and Alaska Native, Asian, and Pacific islander, other race, or two or more races is lower in Tier 1 tracts than in the County as a whole and in non-Tier 1 census tracts. See SREIR (October 2020), Vol. 1, at 6-41. The percentage of the population identified as White is higher in Tier 1 tracts—where the majority of oil and gas development will occur—than in the County as a whole and in the non-Tier 1 tracts.

The ACS data also provide poverty level information for an average of 851,826 individuals in 2018. As shown in SREIR (October 2020) Table 6-2, the percentage of the population below the poverty level in Tier 1 tracts (17.3 percent) is lower than in the County as a whole and in non-Tier 1 census tracts (22-23.3 percent). See SREIR (October 2020), Vol. 1, at 6-42. The vast majority of wells proposed under the Ordinance are anticipated to be located in areas with a higher proportion of white residents and a lower poverty rate than the County as a whole and non-Tier 1 lands. These results indicate that the activities allowed under the Ordinance, the vast majority of which occur in Tier 1 areas, do not appear to be spatially distributed in a manner that disproportionately focuses future oil and gas environmental impacts on sensitive populations. Even if social and economic impacts were included in CEQA analysis, a 2,500-foot setback would not significantly reduce the Project’s effects.

0009-80

The comment states that permitting patterns in the County add to cumulative and disproportionate environmental burdens on communities living near wells and refers to the definition of “cumulative impacts” adopted by the California Environmental Protection Agency for purposes of the CalEnviroScreen screening tool.

The SREIR (October 2020) was updated to include full analysis of the stand-alone 2,500-Foot Setback Alternative. See SREIR (October 2020), Vol. 1, at 6-34–45. This updated analysis finds that this new alternative would not result in less severe

environmental impacts than would the Project and could exacerbate air quality impacts by incentivizing more high-emission horizontal drilling activities. This comment contends that a 2,500-foot setback would protect communities that are disproportionately burdened by environmental impacts—specifically, poorer communities and communities of color. Please see Responses to Comments 0009-78 and 0009-79.

As to the comment's second point, the CalEnviroScreen definition of cumulative impacts is substantially different from the definition of cumulative impacts under CEQA. In particular, the CalEnviroScreen definition includes existing conditions, treated as the baseline under CEQA, and includes socioeconomic factors which are not environmental impacts under CEQA.

0009-81

The comment states that communities living near industrial facilities are subject to unique health risks from toxic chemicals as well as climate change and poor air quality.

Please see Responses to Comments 0009-78, 0009-79, and 0009-62, and the Health Studies Chart attached to this Response to Comments set. The SREIR (October 2020) was updated to include full analysis of the stand-alone 2,500-Foot Setback Alternative. See SREIR (October 2020), Vol. 1, at 6-34–45. This updated analysis finds that this new alternative would not result in less severe environmental impacts than would the Project and could exacerbate air quality impacts by incentivizing more high-emission horizontal drilling activities. The Health Studies Chart includes an expanded discussion of the study referenced in this comment: Johnston and Cushing, L. (2020).

0009-82

This comment states that a 2,500-foot setback would protect communities that are disproportionately burdened by environmental impacts, specifically poorer communities and communities of color.

Please see Responses to Comments 0009-78, 0009-79, 0009-62 and the Health Studies Chart attached to this Response to Comments set. The SREIR (October 2020) was updated to include full analysis of the stand-alone 2,500-Foot Setback Alternative. See SREIR (October 2020), Vol. 1, at 6-34–45. This updated analysis finds that this new alternative would not result in less severe environmental impacts than would the Project and could exacerbate air quality impacts by incentivizing more high-emission horizontal drilling activities. The Health Studies Chart includes an expanded discussion of the study referenced in this comment: Morello-Frosch et al. (2011). Please see Responses to Comments 0009-78, 0009-79, and 0009-80.

0009-83

The comment is an introductory comment stating that the rejection of the 2,500-foot setback alternative in the SREIR, based primarily on the potential for takings liability, is not supported by substantial evidence or legal analysis.

The statements in this introductory comment are addressed in Responses to Comments 0009-84 through 0009-89.

0009-84

The comment states that the SREIR does not adequately explain why a 2,500-foot setback is likely to result in takings liability, as compared to other setback distances.

The SREIR (August 2020) explains that a 2500-foot setback could extinguish mineral owners' rights to access their minerals because the ability of those owners to directionally drill to their mineral location may be impeded by lack of sufficient subsurface rights or existing infrastructure such as pipelines. This impediment would be a result of the Ordinance and result in potential takings liability. This discussion has been updated in the SREIR (October 2020). See SREIR (October 2020), Vol. 1, at 6-34–45. The SREIR notes that the Ventura County 2040 General Plan amendment, adopted in September 2020, established setbacks of 1,500 and 2,500 feet and is currently being challenged in court. See SREIR (October 2020), Vol. 1, at 6-34–45. The mitigation measures for noise and air quality impacts in the SREIR may impose setbacks on specific wells based on analysis of the potential impacts from the well(s), given well characteristics such as depth, and siting considerations such as proximity to sensitive receptors.

The SREIR thus contains a thorough discussion of the infeasibility of a 2,500-foot setback alternative, which would be broadly applied to the detriment of affected mineral rights owners (and which is currently being challenged in court in another jurisdiction), as compared to lesser setback distances or comparable setback distances that are tailored to address specific impact areas, such as noise and air quality, and which take into account the characteristics of the specific well(s) and locations(s) being drilled.

0009-85

The comment states that other jurisdictions, including non-California jurisdictions, have established various setback distances (almost all less than 2,500 feet), and that this undermines rejecting the 2,500-foot setback based on infeasibility due to potential exposure to takings liability.

This discussion has been updated in the SREIR (October 2020). See SREIR (October 2020), Vol. 1, at 6-34–45. The SREIR explains that other jurisdictions have established minimum setback distances ranging from 500 to 2,000 feet (commonly 300 feet in California) and that Kern County's geology often results in discontinuous producible reservoirs that can impede or complicate directional drilling access, precluding greater setback distances. The SREIR thus contains a thorough discussion of the rationale for the rejection of a 2,500-foot setback, notwithstanding what other jurisdictions (including those outside California) may have established.

0009-86

The comment states that several local jurisdictions in California have established minimum setback distances that are greater than the 210-foot setback distance established by the Ordinance, and that these examples illustrate that a setback distance greater than the 210-foot setback in the Ordinance should not be rejected due to concern for takings liability.

The SREIR (August 2020) explains that, in the context of the alternatives analysis, a 2,500-foot setback alternative would be infeasible because it would expose the County to takings liability. This discussion of the rationale for rejection of the 2,500-foot setback alternative, and a discussion of the adequacy of the impact-related setbacks in the Ordinance, has been updated in the SREIR (October 2020). See SREIR (October 2020), Vol. 1, at 6-14–15 and 6-34–45. The SREIR (October 2020) and 2015 FEIR have setbacks for health risk and noise impacts and include additional required mitigation measures, which are supported by studies that show that a setback of 210 feet is sufficient in conjunction with the mitigation measures to reduce the impacts. The SREIR (October 2020) explains that an alternative establishing a setback of 2,500 feet would not result in less severe noise or air quality impacts than would the Project. See SREIR (October 2020), Vol. 1, at 6-36–37. The discussion explains that land use regulations must be reasonable in light of the need for the regulations to protect public safety, and while other jurisdictions may have adopted varying distances of setback, excessive distances, such as in Ventura County as noted by the comment, are subject to litigation and have questionable legal viability. The SREIR thus contains a thorough discussion of the rationale for the existing setbacks, and the rejection of the 2,500-foot setback.

0009-87

The comment states that the takings analysis in the SREIR is legally deficient.

The SREIR (August 2020) explains that imposing a 2,500-foot setback impeding access to owners' vested mineral rights would subject the County to liability for takings claims. This discussion has been updated in the SREIR (October 2020). See SREIR (October 2020), Vol. 1, at 6-43–45. The SREIR explains the implications of an excessive, 2,500-foot setback on thousands of existing and future wells, citing legal authorities constraining imposition of land use regulations that interfere with rights to access minerals. The SREIR recognizes the significant financial liability that would be created if preventing the installation of even one well constitutes a taking. See SREIR (October 2020), Vol. 1, at 6-43–45. The comment also states that two cases cited in the SREIR are "outdated and not informative." *Braly v. Board of Fire Commissioners of City of Los Angeles* (1958) 157 Cal.App.2d 608 (Braly) and *Bernstein v. Bush* (1947) 29 Cal.2d 773 (Bernstein). Both Braly and Bernstein remain valid authorities on the principles for which they were cited: Braly held that municipal code provisions that effectively prohibited the drilling of an oil well were unconstitutional and constituted the taking of property without due process and the court in Bernstein opined that the undue restriction of the right to drill for oil is a constitutional taking just as destroying property would be. The SREIR therefore cites relevant legal authorities to explain why a 2,500-foot setback would expose the County to liability for takings claims, rendering that alternative infeasible.

0009-88

The comment states that the SREIR should have further analyzed potential setback-related takings risks, including adoption of a savings clause, identification of a "tipping point" setback between 210 and 2,500 feet, study of an investment amortization, or adoption of a phase-out period to minimize risk of potential takings claims.

A full discussion of these topics is included in the SREIR (October 2020). See SREIR (October 2020), Vol. 1, at 6-43–45. The SREIR explains that a savings clause would not prevent a court from issuing judgment for takings liability. Additionally, a phasing-out or amortization process as a means of avoiding takings liability would be unworkable for large and interconnected facilities such as an oil field, which requires the continual investment of capital and whose remaining useful life is continually

being extended by new technology. See also Response to Comment 0009-84. The SREIR thus contains a thorough discussion of the topics raised by this comment.

0009-89

The comment states that the County “irrationally” conflated the Setback Alternative with the Fewer Wells Alternative.

The SREIR (October 2020) was updated to include full analysis of the stand-alone 2,500-Foot Setback Alternative, as recommended by this comment. See SREIR (October 2020), Vol. 1, at 6-34–45. This updated alternatives analysis finds that this new 2,500-Foot Setback Alternative would not result in less severe environmental impacts than would the Project, and could exacerbate air quality impacts by incentivizing more high-emission horizontal drilling activities. Please see Responses to Comments 0009-83 through 0009-88. Please also see Response to Comment 0061-85 for additional information regarding how a stand-alone 2,500-foot setback alternative could result in increased horizontal drilling and greater emissions of criteria pollutants and greenhouse gases, and therefore would not result in substantially reduced significant environmental impacts as compared to the Project.

0009-90

In response to this comment, the first full paragraph of Section 6.6.1 of the SREIR (October 2020) is revised as follows, with deleted text shown as ~~striketrough~~ text:

The Drilling Ban on Agriculturally Productive Land Alternative is identical to the Project, except that it would amend Chapter 19.98 of the Zoning Ordinance to prohibit all new oil and gas exploration, development, and production activities on lands zoned either Exclusive Agricultural (A) or Limited Agricultural (A-1), if such land is being used for agricultural production at the time of drilling permit application. If this alternative were implemented, ~~the Project's agricultural mitigation program, as set forth in~~ Mitigation Measure 4.2-1 would not apply. As a result, ~~there would be less agricultural land conserved in perpetuity in the County. Also,~~ there would be less restoration of agricultural land to productive use through the removal of legacy oil and gas production equipment than would occur under the Project. Moreover, under this alternative, it is more likely that otherwise prohibited oil and gas activities on agricultural lands would be displaced to non-agricultural lands with greater habitat and wildlife resource values than typically found on previously disturbed and actively farmed irrigated agricultural land, potentially causing greater overall environmental harm. This alternative could result in more horizontal and directional subsurface drilling activities needed to recover subsurface oil and gas resources located outside of agricultural zoning districts. This additional horizontal and directional subsurface drilling activity would generate greater toxic air, greenhouse gas, and air quality contaminant emissions than the proposed Project. Horizontal and directional drilling activities generally require more time to complete than vertical drilling activity typically associated with Kern County oil and gas well development. Longer drilling periods require the additional combustion of fossil fuels that cause polluting emissions. In addition, since the vast majority of the Project Area would be off-limits to oil and gas activities under this alternative, Alternative 3 is legally infeasible due to legal restrictions on the County's authority to prohibit access to subsurface mineral interests without liability. For these reasons, the Drilling Ban on Agriculturally Productive Land Alternative is rejected for analysis in this EIR.

MM 4.2-1 was revised in the SREIR (October 2020) and provides that, for Oil and Gas Conformity Reviews proposed on qualified agricultural land, legacy oil and gas equipment owned by the permit applicant shall be removed and the underlying grade restored before new well activity can commence. Given this requirement, if the Drilling Band on Agriculturally Productive Land Alternative were adopted, it is likely that less restoration of agricultural lands would occur than under the Project. It is more likely than not that the Agriculturally Productive Land Alternative would displace oil and gas activities to non-agricultural lands with greater habitat and wildlife resources. Most agricultural land in the Project Area is located in Tier 2, as are most of the Project Area's biologically significant habitats and wetland resources. See SREIR (October 2020), Vol. 3, at Tables 4.4-19 and 4.4-20. Agricultural land uses have reduced habitat values for most animal and plant species. See SREIR (October 2020), Vol. 3, at 4.4.

If Tier 2 mineral owners cannot access their mineral holdings underlying agricultural lands, it is likely that they would be displaced to non-agricultural Tier 2 lands of greater biological value than the agricultural land they are prohibited from accessing. If the Drilling Ban on Agriculturally Productive Land Alternative were adopted, the owners of mineral rights underlying agriculturally productive land could only access their mineral interests, if at all, from adjacent non-agriculturally productive lands through the use of directional and horizontal drilling techniques, which may not be technologically or economically feasible, depending on geologic conditions and locations. Where feasible, such directional and horizontal drilling is reasonably expected to require longer drilling periods to reach the mineral source than would be necessary to complete a

vertical well. Drilling time is the main driver of health risk from Project activities because it produces the most emissions of toxic diesel particulate matter, which accounts for 99 percent of the health risk from the Project. See SREIR (October 2020), Vol. 1, at 6-37.

It is reasonable to assume that directional and horizontal well development activities under the Drilling Ban on Agriculturally Productive Land Alternative would cause greater harmful emissions of toxic air contaminants and of criteria pollutants for which the air basis is in nonattainment. Given the size and unconventional geology of the Project area, the owners of mineral interests underlying agriculturally productive lands will sometimes not be able to feasibly exercise their mineral rights as a result of the drilling restrictions assumed by this alternative. In such cases, this alternative would arguably destroy all economically beneficial or production use of such mineral interests, exposing the County to economic harm and unreasonable legal takings liability. See Responses to Comments 0009-83 through 0009-88 for additional details regarding takings liability; see also Responses to Comments 0059-40 and 0061-85 for additional information regarding how certain alternatives that might result in greater horizontal drilling may also result in greater emissions of criteria pollutants and greenhouse gases, and therefore would not avoid or substantially reduce significant environmental impacts as compared to the Project.

This same liability would occur under an alternative that would prohibit horizontal and directional drilling, which this comment incorrectly claims is required by CEQA. “[A]n EIR need not analyze every imaginable alternative or mitigation measure; its concern is with feasible means of reducing environmental effects.” *Santa Clarita Organization for Planning the Environment v. City of Santa Clarita* (2011) 197 Cal.App.4th 1042, 1055-1056. The comment requests a level of analysis that CEQA does not require for alternatives that have been screened from analysis. The level of analysis of alternatives is subject to a rule of reason and need not be exhaustive; a crystal ball inquiry is not required. *Laurel Heights Improvement Assn. v. Regents of the University of Cal.* (1988) 47 Cal.3rd 376, 406; *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 547; *Foundation for San Francisco’s Architectural Heritage v. City & County of San Francisco* (1980) 106 Cal.App.3rd 893, 910. “Absolute perfection is not required; what is required is the production of information sufficient to permit a reasonable choice of alternatives so far as environmental aspects are concerned. It is only required that the officials and agencies make an objective, good-faith effort to comply.” *Residents Ad Hoc Stadium Comm. v. Board of Trustees* (1979) 89 Cal.App.3rd 274, 286. CEQA permits the County broad discretion to formulate the project objectives. “CEQA does not restrict an agency’s discretion to identify and pursue a particular project designed to meet a particular set of objectives.” *Cal. Oak Foundation v. Regents of the University of Cal.* (2010) 118 Cal.App.4th 227, 276.

0009-91

The Drilling Ban On All Lands Alternative was screened from consideration because it would not achieve most Project objectives. See SREIR (October 2020), Vol. 1, at 6-13. Specifically, this alternative would not achieve four of the County’s seven Project objectives, and it would not achieve any of the Applicant’s Project objectives. This comment’s claim that the Applicant’s project objective to “[i]ncrease oil and gas exploration and production in Kern County” is improper is without merit. Controlling caselaw is clear that “CEQA does not restrict an agency’s discretion to identify and pursue a particular project designed to meet a particular set of objectives.” *Cal. Oak Foundation v. Regents of Univ. of Cal.* (2010) 188 Cal.App.4th 227, 276. In addition to failing to meet most of the Project objectives, the SREIR (2020) explains that an alternative that completely bans all new oil and gas exploration, development, and production activities is infeasible due to existing legal restrictions on the County’s authority to prohibit access to subsurface mineral interests without liability. Despite this comment’s claim to the contrary, the 2015 FEIR explains in detail why a complete ban of oil and gas activities within the Project Area would cause enormous economic impacts throughout the County and the state and would adversely impact the investment backed expectations of the Project Area mineral owners and thus unreasonably expose the County to liability under the takings clauses of the state and federal constitutions. See SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-344–348 (2015 FEIR GR-Alt-1: Alternatives Eliminated from Consideration). For more information regarding the County’s unreasonable exposure to takings liability, please see Responses to Comments 0009-83 through 0009-88.

0009-92

The Zero Net Gain Alternative was screened from consideration on the basis that it is legally infeasible because it would expose the County to unreasonable takings liability risks. See SREIR (October 2020), Vol. 1, at 6-20–21. For additional discussion regarding the County’s exposure to legal liability associated with regulatory limitations on mineral rights, see also Responses to Comments 0009-83 through 0009-88 and SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-355–356 (2015 FEIR GR-Alt-1: Alternatives Eliminated from Consideration). This comment’s claim that the growth of the Kern County oil and gas industry, and the increasing of oil and gas exploration and production activities, are not proper Project objectives is without merit. A lead agency has broad discretion to identify and pursue a particular project designed to meet a particular set of objectives. See Response to Comment 0009-91. This comment asserts a lack of substantial evidence supporting the SREIR’s determination that the Zero Net Gain Alternative would not achieve certain project objectives, citing a September 3, 2020,

publication by WSPA that compares the number of new well permits issued annually on a statewide basis to the number of non-producing idle wells that are annually abandoned statewide in accordance with CalGEM's new Idle Well Regulations. The Zero Net Gain Alternative, however, does not implicate non-producing idle wells that are abandoned in accordance with the Idle Well Regulations. To the contrary, under the Zero New Gain Alternative, no new well permits would be issued except to the extent an equal number of active *production* wells are first taken out of production so as to ensure that "there would be zero net gain in the total number of oil and gas wells *operating* in the County as compared to baseline conditions." See SREIR (October 2020), Vol. 1, at 6-20 (emphasis added). Thus, this comment's reliance on the cited WSPA publication in effect compares apples to oranges. The cited publication concerns statewide data that are not specific to Kern County or the Project Area.

0009-93

This comment asserts that the SREIR does not adequately support its conclusion that Alternative 5, the Low-Emission Enhanced Oil Recovery Technology Alternative, is "environmentally superior" to the Project.

The comment does not explain the basis for this assertion. In fact, as summarized in SREIR Table 6-1, all of Alternative 5's environmental effects would either be the same as, or somewhat less than, the environmental effects of the Project, whereas all of the other alternatives would have some environmental effects that are somewhat greater than those of the Project, even if they would also reduce some of the Project's significant effects. See SREIR (October 2020), Vol. 1, at 6-46–47. In this sense, Alternative 5 is the environmentally superior alternative among all of the other alternatives. The SREIR considers a number of potential alternatives and analyzes a reasonable range of alternatives sufficient to promote informed decisionmaking. This is all that CEQA requires. 14 Cal. Code Regs. § 15126(a), (c). An EIR is not deficient simply because it excludes other potential alternatives from its analysis, such as an alternative that "combine[s] the benefits of various alternatives" suggested by this comment. *South of Market Community Action Network v. City & County of San Francisco* (2019) 33 Cal.App.5th 321, 345. The SREIR's alternatives analysis complies with the requirements of CEQA.

0009-94

This comment takes issue with the SREIR's observation that the "No Project" alternative would not achieve the Project objective creating an "effective regulatory and permitting process" for oil and gas activities on the basis that the SREIR does not explain what it means by "effective."

Under the "No Project" alternative, however, the Project's proposed regulatory program would not be adopted at all. When assessing the "No Project" alternative's ability to create a regulatory program that it would not actually adopt, the effectiveness of such an unadopted program is immaterial. With respect to the Court of Appeal's statement quoted by this comment, it only concerns the environmental effects of the Project and it has no bearing on the environmental effects associated with the "No Project" alternative. The quoted statement is irrelevant to the SREIR's analysis of the "No Project" alternative's environmental effects. Despite this comment's claim to the contrary, substantial evidence in the record supports the SREIR's determination that the "No Project" alternative would, as compared to the Project, have more severe adverse environmental effects related to aesthetics and visual resources, agricultural and forest resources, air quality, biological resources, cultural and paleontological resources, geology and soils, greenhouse gas emissions, hydrology and water quality, noise, transportation and traffic, and utilities and service systems. If the "No Project" alternative were adopted, the County's current "by right" oil and gas well drilling regime would continue and none of the Project's proposed development standards or conditions would be implemented in the County on a consistent basis for all new wells; therefore, the "No Project" alternative would not achieve the same environmental benefits of the Project. See SREIR (October 2020), Vol. 1, at 6-23. Without implementation of the Project's proposed development standards and conditions, the "No Project" alternative would have greater environmental impacts than the Project in most impact categories, particularly with respect to biological resources, cultural resources, and noise. With respect to this comment's claim that project-specific, site-specific CEQA analysis is required for each oil and gas well permit, please see Response to Comment 0009-10.

0009-95

The SREIR's determination that Alternative 2 is not as protective of the environment as is the Project is supported by substantial evidence, despite this comment's claim to the contrary. The SREIR explains that there are two primary reasons for this conclusion: (i) the SREIR uses highly conservative impact assumptions in order to present a "worst case" impact scenario based on best available evidence, and (ii) to reduce the "worst case" impacts to the extent feasible, the EIR establishes mandatory mitigation measures, agreed to by the Project applicant, that will be imposed on every individual well project without regard to whether any single well project would actually cause the impact for which mitigation is required. See SREIR (October 2020), Vol. 1, at 6-25. For example, under the Project's proposed regulatory structure, all Project Area ground disturbance is subject to a compensatory mitigation requirement, irrespective of whether such disturbance will

impact sensitive habitat or special status species. Such mitigation would not be implemented under Alternative 2 without evidence of foreseeable impact. As this example illustrates, the mitigation program established by the Project will provide mitigation at levels in excess of that which would occur if new wells were subject to discretionary approval following individual environmental review. In this sense, the Project is environmentally superior to Alternative 2 and will better serve regional conservation priorities.

With regard to this comment's concern about the Project objective of establishing a streamlined permitting process, "CEQA does not restrict an agency's discretion to identify and pursue a particular project designed to meet a particular set of objectives." *Cal. Oak Foundation v. Regents of the University of Cal.* (2010) 118 Cal.App.4th 227, 276. Thus, streamlining the permitting process is a permissible project objective reflecting land use policy decisions within the Board of Supervisor's authority, despite this comment's claim to the contrary. *San Diego Citizenry Group v. County of San Diego* (2013) 219 Cal.App.4th 1, 18 (core objective of amending zoning ordinance was streamlining the approval process and permitting boutique wineries by right, which would encourage growth of agriculture and wine industry). Substantial evidence also supports the SREIR's determination that the Conditional Use Permit Alternative would not achieve the Project's basic permit streamlining objective, as recognized by the Fifth District Court of Appeal. Forecasts were included in the administrative record for the court for the volume of permits that the County would need to process under the Conditional Use Permit Alternative and the greater level of staff resources and time implementation that this alternative would entail. The County currently contains approximately 75 active oil and gas fields, and over 2,500 wells that are drilled in the County every year. It is not practical to subject every well permit to an individual discretionary approval process, or for environmental reviews to be conducted on every single well or group of wells. Alternative 2's Conditional Use Permit requirement would change the basic nature of the Project and controlling caselaw is clear that this is not required by CEQA. *In re Bay-Delta Programmatic Evt'l Impact Report Coordinated Proceedings* (2008) 43 Cal.4th 1143, 1157, 1164; *Al Larson Boat Shop, Inc. v. Board of Harbor Comm'rs* (1993) 18 Cal.App.4th 729, 745. Even if additional administrative permit processing fees were imposed under Alternative 2, as this comment suggests, the County does not have the capacity to approve the number of discretionary permits through all levels of the permit approval process that this alternative would require. Fee revenues cannot increase the Planning Commission's or Board of Supervisor's capacity to review and consider each and every Conditional Use Permit application that would be required under Alternative 2 within the timeframes required by the Government Code. Please also see Response to Comment 0009-10.

0009-96

As this comment correctly notes, the SREIR determined that Alternative 3 would result in environmental tradeoffs. On the one hand, Alternative 3 would result in less overall ground disturbance and thus would have somewhat reduced impacts to agricultural, biological, aesthetic, and hydrologic resources as compared to the Project. However, Alternative 3 would incentivize horizontal and directional drilling activities needed to access subsurface mineral resources located outside of Administrative Boundary areas. The horizontal and directional drilling activities incentivized by Alternative 3 would result in greater adverse air quality and greenhouse gas impacts than would the Project due primarily to the longer drilling times and heavier equipment such drilling techniques require. See SREIR (October 2020), Vol. 1, at 6-27. Please also see Responses to Comments 0059-40 and 0061-85 for additional details regarding how certain alternatives that could result in increased horizontal drilling may result in greater emissions of criteria pollutants and greenhouse gases, and therefore would not avoid or substantially reduce significant environmental impacts as compared to the Project.

Despite this comment's claim to the contrary, the SREIR's alternatives analysis is not required to provide detailed information regarding the magnitude of these potential impacts or to weigh Alternative 3's environmental benefits against its environmental harms. The SREIR's analysis of Project alternatives need not be exhaustive; it need only include sufficient information about each alternative to allow a meaningful comparison with the Project, which can be satisfied by assessing the relative merits of the alternatives and by a matrix displaying the major characteristics and significant environmental effects of each alternative. 14 Cal. Code Regs. § 15126.6(d); *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 547-548. The SREIR's alternatives analysis meets this standard.

This comment's assertion that CEQA requires the SREIR to consider a variation of Alternative 3 that would ban the use of horizontal and directional drilling is without merit. CEQA does not require the SRIER to consider in detail every conceivable variation of the alternatives stated. See *Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal.App.4th 477, 491; *Residents Ad Hoc Stadium Comm. v. Board of Trustees* (1979) 89 Cal.App.3d 274, 287. A regulatory ban on the use of horizontal and directional drilling would mean that, under Alternative 3, the owners of mineral interests located outside of CalGEM-designated Administrative Boundary areas would have no practicable means of accessing such mineral interests. Stated another way, a variant of Alternative 3 that would ban the use horizontal and directional drilling would destroy all economically beneficial or productive use of mineral interests located outside CalGEM-designated Administrative Boundary

areas, a result that would expose the County to unreasonable takings liability. Indeed, as this comment correctly notes, the SREIR determined that, even without a ban on horizontal and directional drilling, Alternative 3 would expose the County to unreasonable takings liability because it is reasonable to assume that in some instances the owners of mineral interests located outside of Administrative Boundary areas would not be able to feasibly exercise their mineral rights due to the size and unconventional geology of the Project Area. See SREIR (October 2020), Vol. 1, at 6-27. With respect to this comment's claims regarding the applicability of takings law to the County, please see Responses to Comments 0009-83 through 0009-88 and SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-355–356; 361–362 (2015 FEIR GR-Alt-1: Alternatives Eliminated from Consideration; 2015 FEIR GR-2-Alt-2: Alternatives Evaluated in Detail in the EIR).

0009-97

The comment states that the SREIR fails to take into account information from the CCST's July 2015 study, *An Independent Scientific Assessment of Well Stimulation in California*, regarding chemicals used in well stimulation and potential contamination of water resources, as well as indirect impacts from extending the life of existing wells by well stimulation.

The CCST report does not constitute new information. It appeared after the 2015 Draft EIR was issued, but was extensively analyzed in the 2015 FEIR. The 2015 FEIR found that the EIR already addressed the issues raised by the report and was consistent with the applicable principles, conclusions, and recommendations in the report. See SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-148–159 (2015 FEIR GR-12: CCST-General). With respect to contamination risks, the CCST report concluded that the direct impacts of well stimulation appear to be small, although they bear further investigation, and that good management practices and mitigation measures can address these relatively small direct impacts. See SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-159–161 (2015 FEIR GR-13: CCST-Well Stimulation). Regarding the potential for indirect impacts from increased production attributable to well stimulation, the well projections in the 2015 FEIR, which are utilized in the SREIR (October 2020), already incorporate that potential increase. See SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-162–164 (2015 FEIR GR-15: CCST: Hydraulic Stimulation Enabling/Production Inducing); see also SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-234–235; 7-260–263; 7-335–338 (2015 FEIR GR-Air-9: CCST-Air Emissions; GR-Geo-1: CCST-Produced Water and Earthquake Risk; and GR-Water-06: Response to Issue Raised in CCST Recommendations).

The comment states that the SREIR is incorrect in stating that overall greenhouse gas emissions could increase if well stimulation is prohibited, because production would be expected to shift to non-stimulated oilfields associated with higher emissions per barrel. This conclusion is quoted from the CCST report. See SREIR (October 2020), Vol. 1, at 6-29.

0009-98

The comment quotes language from the Public Resources Code, section 21166 (setting forth requirements for when a supplemental or subsequent EIR must consider new information). The comment states that, since the certification of the 2015 FEIR, new scientific information, along with the experience of County staff in implementing the 2015 Ordinance, warrants reexamination of the portions of the 2015 FEIR that were not found legally deficient by the Court of Appeal.

Please see GR-1 – Beyond the Scope of the SREIR. The Project was unanimously approved and the 2015 FEIR certified by the Kern County Board of Supervisors on November 9, 2015. Several lawsuits were filed challenging the 2015 FEIR. On February 25, 2020, the Court of Appeal issued a decision upholding the 2015 FEIR against all claims except for five areas in which the FEIR did not comply with CEQA: (1) mitigation of water supply impacts; (2) impacts from PM_{2.5} emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well HRA. On June 12, 2020, the Superior Court issued a Modified Judgment consistent with the Court of Appeal's decision. The County was directed to set aside its certification of the 2015 FEIR and approval of the Ordinance, and to prepare a supplemental CEQA review correcting the five defects before reapproving the Ordinance. The Court of Appeal's decision and the Modified Judgment are consistent with controlling caselaw, which provides that, where a court decision requires the lead agency to correct specific defects in an EIR, the agency need not start the EIR process anew and is required only to address those specific issues identified by the court for correction.

The comment states that the CEQA analysis should extend beyond the five issues that the Court of Appeal decision and Modified Judgment direct the County to analyze before considering certification of the SREIR. The Superior Court and Court of Appeal resolved all other CEQA claims in favor of the County. The Final SREIR is not required to include new analysis of topics beyond the five issues identified in the Court of Appeal decision. The scientific information related to oil and gas impacts, and the information gleaned from implementation of the 2015 Ordinance, does not constitute a "changed circumstance" or "new information" requiring supplemental environmental review under CEQA. See Responses to Comments 0009-99 through 0009-126. A supplemental EIR is not required unless:

- Substantial changes to the proposed project, or to the circumstances under which the project is undertaken, will require major revisions of the prior EIR due to new or substantially more severe environmental impacts; or
- New information of substantial importance is available, which was not known and could not have been known when the prior EIR was certified, shows that the project will have new or substantially more severe environmental impacts; or new information of substantial importance is available, which was not known and could not have been known when the prior EIR was certified, shows that mitigation measures or alternatives previously found infeasible, or considerably different from those analyzed in the prior EIR, would substantially reduce significant impacts, but the project proponents decline to adopt the mitigation measure or alternative. Cal. Pub. Res. Code § 21166; CEQA Guidelines § 15162.

The provisions governing supplemental CEQA review “are designed to balance CEQA’s central purpose of promoting consideration of the environmental consequences of public decisions with interests in finality and efficiency.” *Friends of College of San Mateo Gardens v. San Mateo County Community College Dist.* (2016) 1 Cal.5th 937, 949. This comment is introductory providing a general statement and does not raise either substantial changes in circumstances or new information requiring supplemental analysis under Cal. Pub. Res. Code § 21166 and CEQA Guidelines § 15162. See also Responses to Comments 0009-99 through 0009-126.

0009-99

The comment states that circumstances have changed since the adoption of the 2015 FEIR, that studies show that exposure to PM_{2.5} is linked to increased mortality from COVID-19, and that Kern County community members who shelter in place may be in close proximity to oil and gas operations.

The SREIR contains an analysis of recent studies relating PM_{2.5} exposure to COVID-19 mortality, along with addressing relevant demographics within the County. See SREIR (October 2020), Vol. 1 at 4.3-43–44, 155–156. This discussion includes a summary of numerous reports regarding the relationship between COVID-19 mortality and PM_{2.5} exposure, including those referenced in the comment. The comment does not raise new significant information, nor does it reveal a new or worsened significant impact. Please see Response to Comment 0009-98 above regarding what constitutes new significant information under Cal. Pub. Res. Code § 21166 and CEQA Guidelines § 15162. The COVID-19 pandemic was addressed in the Air Quality section of the August 2020 SREIR, and the discussion was expanded in the October 2020 SREIR. No new significant environmental impact results from the Project, nor is there a substantial increase in the severity of the environmental impact of PM_{2.5} as a result of the Project that could be mitigated to a level of less than significant, the timeline for widespread community immunity to COVID-19 is yet unknown. See SREIR (October 2020), Vol. 1, at 4.3-156. Although the Project’s emissions remain significant and unavoidable, PM_{2.5} emissions from Project implementation will be reduced with to a level of no net increase with implementation of MM 4.3-1 through MM 4.3-4 and MM 4.3-8. MM 4.3-6 in particular requires applicants to implement all orders related to the COVID-19 pandemic or any other pandemic mandated by Kern County Public Health. The SREIR contains a thorough discussion of elevated risks related to COVID-19 mortality and exposure to PM_{2.5} emissions.

0009-100

The comment states that volatility in oil prices, worsened by the economic effects of the COVID-19 pandemic, have undermined the need for streamlined well permitting.

The SREIR analyzed the potential impacts of the proposed Project on the aspects of the environment included within the SREIR scope. See GR-1 – Beyond the Scope of the SREIR. The SREIR (October 2020) discussed how oil and gas exploration and production activity has fluctuated considerably over time. In discussing the baseline conditions, the SREIR explains the various factors that have influenced oil and gas production activity, including the price of oil. Historic data used to develop well projections for the Project show wide fluctuations from year to year in response to oil prices as well as available technology, available reserves, and changing regulatory requirements. See SREIR (October 2020), Vol. 1, at 2-23–24; see also SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-128–131; 136–142 (2015 FEIR GR-6: Baseline: 2012; GR-8: Future Well Projections).

The SREIR contains a thorough discussion of industry volatility. The economic downturn resulting from the COVID-19 pandemic has substantially depressed oil demand below its pre-COVID level, but this effect is expected to be temporary. According to the International Energy Agency, while oil demand growth is projected to slow, demand will return to its 2019 level by 2023 under current policies (Stated Policies Scenario). Recovery to 2019 levels could be delayed by a few years in the event of a prolonged pandemic (Delayed Recovery Scenario). See “Global Oil Demand By Scenario, 2010-2040” from the International Energy Agency’s *World Energy Outlook 2020*, available at <https://www.iea.org/data-and->

[statistics/charts/global-oil-demand-by-scenario-2010-2040](#) (IEA 2021). However, with the anticipated availability of vaccines, a prolonged pandemic and substantially delayed recovery now seem less likely.

0009-101

The comment describes a downward trend of oil price and job declines and oil company bankruptcies, stating that continued investment in the oil and gas industry is “likely to have disastrous long-term economic consequences.”

The SREIR acknowledges and discusses long-term volatility in the oil and gas industry. Please see Response to Comment 0009-100. This comment does not identify a potential environmental impact that could require further analysis in the SREIR. Rather, encouragement of the oil and gas industry and its economic contributions to Kern County is one of the objectives for the Project, in conjunction with enhanced environmental protection of Kern County communities for the legally permitted activities. The Project is intended to “[e]ncourage ongoing economic development by the oil and gas industry that creates quality, high-paying jobs and promotes capital investment in Kern County.” See SREIR (October 2020), Vol. 1, at 3-83.

The comment identifies the bankruptcy of California Resources Corporation as raising concerns about its ability to pay for proper plugging and abandonment of wells. California Resources Corporation has already emerged from its bankruptcy without impact to its regulatory obligations (Businesswire 2020). The comment also asserts that oversupply of oil is preventing tankers from unloading. Issues affecting tankers that transport oil from outside California are outside the scope of the SREIR, while the example that the comment cites of tankers unable to unload occurred in spring 2020, when demand was substantially depressed by the effects of the COVID-19 pandemic.

0009-102

The comment states that since the 2015 EIR was certified, climate change has progressed, and that temperatures and wildfires have increased since that time.

Please see GR-1 – Beyond the scope of the SREIR. Climate change and its indirect impacts is not one of the five topics required to be addressed in the SREIR. Please also see Response to Comment 0009-98 explaining what constitutes new or significant information under CEQA. The 2015 FEIR contains an extensive discussion of climate change, including the trend of rising temperatures and increasing wildfires, heat waves, and floods. See SREIR (October 2020), Vol. 3, Section 4.7, Greenhouse Gas Emissions and Global Climate Change. The comment does not raise any issue that constitutes significant new information because climate change and its indirect effects were known and addressed in the 2015 FEIR. See *Concerned Dublin Citizens v City of Dublin* (2013) 214 Cal.App.4th 1301 (the adoption of new guidelines for evaluation of greenhouse gas emissions was not significant new information requiring further CEQA review because information about the potential effects of those emissions was known and could have been addressed in connection with the certification of the original EIR). The 2015 FEIR contains a thorough discussion of the issues raised in this comment concerning continued climate change and its effects.

0009-103

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers.

Please see Responses to Comments 0009-104 through 0009-126.

0009-104

The comment requests that the SREIR disclose and analyze its experience implementing the 2015 Ordinance. The comment states that new information regarding this issue should have been analyzed in the SREIR.

The Court of Appeal issued a decision upholding the 2015 FEIR against all claims except for five areas in which the FEIR did not comply with CEQA: (1) mitigation of water supply impacts; (2) impacts from PM_{2.5} emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well HRA. See GR-1 – Beyond the Scope of the SREIR; see also Slip Opinion, at p. 140. The court directed the County to set aside its certification of the FEIR and approval of the Ordinance and to prepare a supplemental CEQA review correcting the five defects before reapproving the Ordinance. The issue identified in this comment is not one of the five issues that the Court of Appeal decision and Modified Judgment directed the County to analyze before considering certification of the SREIR. Under CEQA, review of particular impacts can only be reopened if particular criteria from Cal. Pub. Res. Code § 21166 are met, specifically if there is new information of substantial importance showing that the project will have new or substantially more severe environmental impacts.

The experience of County staff in implementing the Ordinance has not revealed any new or worsened significant impacts beyond those discussed in the SREIR (October 2020). As part of the adoption of the 2015 Ordinance, County staff were directed to provide annual updates to the Board of Supervisors regarding the implementation of the 2015 Ordinance. These annual updates are available on the Kern County Planning and Natural Resources Department website. The annual reports provide an accounting of annual CEQA mitigation fees collected, including roads mitigation, fire equipment mitigation, biological habitat replacement mitigation, OG-ERA mitigation, agricultural land replacement mitigation, and paleontological mitigation. The annual reports also provide information regarding the types of permits sought pursuant to the 2015 Ordinance. Permitting handbooks have also been developed to assist producers in navigating the permitting process under the 2015 Ordinance. In the process of implementing the 2015 Ordinance, certain clarifications were identified that would ensure applicant compliance and would further improve the ministerial permit process. These clarifying changes in response to administrative experience are not significant new information of a new or more severe significant impact.

0009-105

The comment requests disclosure of which mitigation measures have been applied to permits, the success of the mitigation measures, and what steps taken to ensure that mitigation measures were properly implemented. The comment explains that this is particularly important with regard to the effectiveness of MM 4.3-8.

As part of the adoption of the 2015 Ordinance, County staff were directed to provide an annual update to the Board of Supervisors regarding the implementation of the 2015 Ordinance. These annual updates are available on the Kern County Planning and Natural Resources Department website. The annual reports provide an accounting of annual CEQA mitigation fees collected, including roads mitigation, fire equipment mitigation, biological habitat replacement mitigation, OG-ERA mitigation, agricultural land replacement mitigation, and paleontological mitigation. They also provide information regarding the types of permits sought pursuant to the 2015 Ordinance. Permitting handbooks have also been developed to assist producers in navigating the permitting process under the 2015 Ordinance. For further response regarding mitigation measures, please see Response to Comment 0009-104.

Compliance can be ensured through County enforcement powers under Kern County Zoning Code § 19.102.020, which allows revocation of any permit where any term or condition of the permit has not been complied with. See also SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-168–172 (Enforcement of Mitigation Measures and Ordinance). For further discussion of the County's enforcement authority, please see Response to Comment 0008-47. The SJVAPCD also produces annual reports regarding the use of funds generated through MM 4.3-8. Evidence shows that MM 4.3-8 and the OG-ERA have been implemented and enforced as expected in the 2015 FEIR and will continue to achieve the reductions necessary to reduce Project emissions to net zero. For further discussion of the effectiveness of implementation of MM 4.3-8, please see Responses to Comments 0009-17 to 0009-30. Under CEQA, review of particular impacts can only be reopened if particular criteria from Cal. Pub. Res. Code § 21166 are met, specifically if there is new information of substantial importance showing that the project will have new or substantially more severe environmental impacts. The experience of County staff in implementing the Ordinance has not revealed any new or worsened significant impacts beyond those discussed in the SREIR (October 2020).

0009-106

The comment requests that County disclose its experience in implementing MM 4.17-2.

MM 4.17-2 has been deleted from the SREIR (October 2020). Three mitigation measures in the 2015 FEIR, MM 4.17-2 through MM 4.17-4, were identified to reduce significant impacts by encouraging greater produced water reuse and reduced domestic and irrigation water use by oil and gas operators. The Court of Appeal determined that these mitigation measures violated CEQA because they did not require or result in predictable oil and gas M&I water use reductions, and because they did not provide the County Board of Supervisors with sufficient information concerning the net impact to groundwater and water supplies when the Board adopted a Statement of Overriding Considerations for these impacts. From 2016 to 2019, when MM 4.17-2 through 4.17-4 from the 2015 FEIR were in effect, certain applicants were able to implement measures to reduce oil and gas use of higher quality M&I water. Additional measures were also planned for future periods (WSPA 2020).

Progress on the implementation of MM 4.17-2 during this period was also reported as part of the annual update to the Board regarding the implementation of the 2015 Ordinance. The 2019 annual progress report discloses that industry representatives submitted a memorandum identifying the five biggest industry users of municipal and industrial water by volume. These companies are Chevron, Freeport-McMoRan Oil & Gas, Aera Energy, LINN Energy, and California Resources Corporation. The estimated amount of combined M&I water injected was 8,000 AFY. The industry has committed to working together to identify new measures to reduce M&I water by 2020. While this information shows that it may be possible to encourage

reduced M&I water use, it does not demonstrate that any such reduction can be feasibly implemented in a manner that will reduce Project water supply impacts to a predictable extent and on a widespread basis throughout the Project Area. Review of particular impacts can only be reopened if particular criteria from Cal. Pub. Res. Code § 21166 are met, specifically if there is new information of substantial importance showing that the Project will have new or substantially more severe environmental impacts. The experience of County staff in implementing the Ordinance has not revealed any new or worsened significant impacts beyond those discussed in the SREIR (October 2020).

0009-107

The comment states that the SREIR (August 2020) failed to consider studies that demonstrate health risks associated with oil and gas production activities, and that such studies support the imposition of a general 2,500-foot setback from sensitive receptors.

The studies referenced in the comment and at sections VIII.A and VI of the comment letter were considered and responded to accordingly at Responses to Comments 0009-65 through 0009-77. Also, as explained in Response to Comment 0009-57, a complete discussion of the research discussing potential health effects of proximity to oil and gas wells has been incorporated into the Air Quality section of the SREIR (October 2020) to provide full public disclosure of the Project's potential impacts to the environment. See SREIR (October 2020), Vol. 1, at 4.3-28–41. This discussion includes a summary of numerous reports regarding potential impacts from oil and gas operations, including those referenced in Sections VIII.A and VI of the comment letter. Therefore, the SREIR (October 2020) fully analyzes and considers the studies referenced in this comment that explored health risks associated with close proximity to oil and gas activities.

0009-108

The comment states that the SREIR (August 2020) fails to consider the following studies that demonstrate a link between air quality and vulnerability to COVID-19:

- **Wu, Xiao et al. *Exposure to Air Pollution and COVID-19 Mortality in the United States: A Nationwide Cross-sectional Study*. *Science Advances* (Apr. 24, 2020).** This study found that higher historical PM_{2.5} exposures are positively associated with higher COVID-19 mortality rates after accounting for many County area-level confounding variables. The authors note several key limitations, including that ecological regression analyses are unable to adjust for individual-level risk factors (e.g., age, race, and smoking status).
- **Ogen, Y. *Assessing Nitrogen Dioxide (NO₂) Levels as a Contributing Factor to Coronavirus (COVID-19) Fatality*. *Science of the Total Environment* (Apr. 11, 2020).** By analyzing spatial mapping tool of NO₂ distribution in the troposphere and fatalities in Italy, Spain, France, and Germany, this study found that long-term exposure to NO₂ may be an important contributor to fatality caused by the COVID-19 pandemic. The authors note that additional studies should be conducted to focus on additional factors (e.g., age, presence of pre-existing or background diseases) along with the impact of pre-exposure to NO₂ and hypercytokinemia, in order to verify their impact on fatalities due to COVID-19.
- **Travaglio, M. et al. *Links between Air Pollution and COVID-19 in England*. *Environmental Pollution* (Apr. 28 2020).** This study concluded that levels of nitrogen oxides have an effect on COVID-19-related cases and death, while ozone only has an effect on COVID-19 deaths. The authors note that models did not account for other confounders such as socioeconomic status, comorbidities, age, race, and differences between regional health regulations and intensive care unit capacities.
- **Conticini, E. et al. *Can Atmospheric Pollution Be Considered a Co-factor in Extremely High Level of SARS-CoV-2 Lethality in Northern Italy?* *Environmental Pollution* (Apr. 4, 2020).** This study investigated the correlation of COVID-19's lethality and atmospheric pollution in northern Italy. The study found evidence that people living in areas with high levels of pollutants are more prone to develop chronic respiratory conditions and susceptible to infective agents. The study noted that other important factors such as the age structure of the affected population, the wide differences among Italian regional health systems, capacity of the intensive care units in the region, and the prevention policies taken by the government have had a paramount role in the spreading of COVID-19, presumably more than the air pollution. The study also focused on only two Italian regions, and the authors note the need to evaluate lethality in other regions worldwide.
- **Tian, H. et al. *Risk of COVID-19 Is Associated with Long-term Exposure to Air Pollution*. *MedRxiv* (Apr. 24, 2020)** This study analyzed individual level data of confirmed COVID-19 cases in mainland China by March 6, 2020, and observed positive associations between reported and severe cases of COVID-19 and historic air pollution concentrations. The authors note, however, that all of the data analyzed were derived from mainland China, so it is

unclear whether the findings applied to other countries with historic air pollution exposure. Second, the authors acknowledge lack of high-quality records for severe COVID-19 infection and intensive care unit admissions, and note that the exact amount of unconfirmed cases was not available.

- **Zhu, Y. et al. *Association between Short-term Exposure to Air Pollution and COVID-19 Infection: Evidence from China*. *Science of the Total Environment* (Apr. 15, 2020)** – This study explored the relationship between ambient air pollutants (PM_{2.5}, PM₁₀, sulfur dioxide, carbon monoxide, NO₂, and ozone) and COVID-19 infections among 120 Chinese cities between January 23, 2020, and February 29, 2020. The authors acknowledge that the study focused on the association—and not causal relationship—between air pollutants and confirmed cases of COVID-19, and that the study’s findings are “not globally representative since cities and other countries” were not analyzed.
- **Petroni, M., et al. *Hazardous Air Pollutant Exposure as a Contributing Factor to COVID-19 Mortality in the United States*. *Environmental Research Letters* (Sept. 11, 2020).** This study investigated whether HAPs respiratory hazard quotient and respiratory hazard index are related to COVID-19 mortality and found that an increase in the respiratory hazard index is associated with a 9 percent increase in COVID-19 mortality. The authors note several limitations (e.g., one-year exposure variables, assuming those who died from COVID-19 were chronically exposed to HAPs), and caution that its results were “not appropriate for individual-level inferential statements” and do not “allow for causal conclusions.”

Several of the studies described above may not be relevant to air quality impacts or the effects of COVID-19 in the United States, let alone Kern County. Other than Wu et al (2020), all of the studies referenced in the comment analyzed COVID-19 and air quality data in European or Asian countries. Due to the inherent differences that may exist between the air quality data, air quality standards and regulations, health care standards, and data reporting practices of other countries and the United States, these studies may not be appropriate to support a link between poor air quality and increased vulnerability of infection and mortality from COVID-19 in Kern County.

In addition, several of the studies suffer from limitations that have been observed by other academics. See Heederik et al. (2020). This paper critiques three of the studies—Wu et al. (2020), Ogen (2020), and Travaglio et al. (2020)—which were all published within 10 days of one another and subject to one-day review periods. Heederik et al. (2020) notes that all three ecological studies rely on aggregate data and suffer from the well-known “ecological fallacy,” where “misjudgments in interpretation occur when inferences about individuals are reasoned from inferences about the group to which the individual belongs.” The paper also notes that “a major issue” in these studies stems from the complexity of potential association between air pollution and COVID-19 mortality: “To explore whether air pollution influences R₀, high-resolution temporal and spatial data are required, preferably supported by virus sequencing data. This far exceeds the granularity of the data used in air pollution studies and most infectious disease outbreak studies.” Another paper (Pisoni and Van Dingenen 2020) observed a number of flaws and limitations of Ogen (2020). Pisoni and Van Dingenen (2020) explained that NO₂ from satellite data has limitations to track ground level pollution in cities, and that different countries report deaths in different fashions. The paper also asserts that correlation between NO₂ exposure and COVID-19 does not mean causality and that “[t]o demonstrate that air pollution is a contributing risk factor in COVID-19 fatality, a proper epidemiological study should be done, taking into account confounding factors.”

As explained in Response to Comment 0009-4, the SREIR (August 2020) contains a thorough discussion of COVID-19 and its common symptoms, and cites Wu et al. (2020) as showing that a small increase in long-term exposure to PM_{2.5} has been found to lead to an increase in the death rate of COVID-19. See SREIR (August 2020), Vol. 1, at 4.3-27–28. The SREIR (October 2020) also includes updated data of COVID-19 infections and deaths in the County, and a breakdown of these data based on ethnic populations. See SREIR (October 2020), Vol. 1, at 4.3-155–156. The SREIR explains that long-term exposure to PM_{2.5} emissions may add to potential susceptibility to COVID-19 and that onsite workers and residents near Project activities potentially could be exposed to increased levels of PM_{2.5} from Project activities, as those emissions are described under Impact 4.3-2. See SREIR (October 2020), Vol. 1, at 4.3-155–156. The SREIR states that, although PM_{2.5} emissions from Project implementation will be reduced as much as feasible with implementation of MM 4.3-1 through MM 4.3-4 and MM 4.3-8, this impact cannot be mitigated to a level of less than significant as the timeline for widespread community immunity to COVID-19 is yet unknown. The SREIR finds this impact significant and unavoidable even with all feasible mitigation.

The SREIR (October 2020) focuses on the relationship between PM_{2.5} exposure and COVID-19 risks, rather than COVID-19 risks in the context of each criteria pollutant or toxic air contaminant (TAC) / hazardous air pollutant (HAP). The SREIR elsewhere discusses the potential adverse health risks associated with exposure to other criteria pollutants and TACs/HAPs. See, e.g., SREIR (October 2020), Vol. 1, at 4.3-11–12 (ozone can damage the respiratory tract, cause inflammation and irritation, and induce symptoms such as coughing, chest tightness, shortness of breath, and worsening of asthmatic symptoms); 4.3-12 (exposure to carbon monoxide can cause chest pain in heart patients, headaches, and reduced mental

alertness); 4.3-13–14 (exposure to NO_x can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza, and short-term exposures to low levels of NO₂ may lead to changes in airway responsiveness and lung function in individuals with preexisting respiratory illnesses); 4.3-16–18 (short-term and long-term exposures to sulfur dioxide can be linked to adverse respiratory effects); 4.3-14–15 (exposure to PM_{2.5} can affect both the lungs and heart, and contribute to aggravated asthma, decreased lung function, and increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing); and 4.3-21–28 (discussing various HAPs and related health impacts, including, for some, respiratory disorders).

In addition to these pollutant-specific analyses, the SREIR (October 2020) analyzed health effects from oil and gas activities more generally, noting in particular that “[c]lose proximity to oil and gas wells may result in exposure to toxic contaminants in air and/or water,” which may lead to adverse health effects, “such as asthma and other respiratory diseases....” See SREIR (October 2020), Vol. 1, at 4.3-28–29. Therefore, the SREIR fully apprised the public and decisionmakers of the adverse health risks associated with air quality emissions from Project activities, including potential increased susceptibility to COVID-19 risks associated air pollutant exposure. CEQA requires an EIR to reflect a good faith effort in providing full disclosure; it does not mandate perfection, nor does it require an analysis to be exhaustive. See, *Laurel Heights Improvement Assn. v. Regents of Univ. of California*, 47 Cal. 3d 376, 415-416, (1988) (Laurel Heights I) (“A project opponent or reviewing court can always imagine some additional study or analysis that might provide helpful information. It is not for them to design the EIR. That further study ... might be helpful does not make it necessary.”)

0009-109

The comment states that permitting oil and gas operations contributes to worsening climate change.

Please see GR-1 – Beyond the Scope of the SREIR. Climate change and its indirect impacts is not one of the five topics required to be addressed in the SREIR. Please also see Response to Comment 0009-98 explaining what constitutes new or significant information under CEQA. Please also see Response to Comment 0009-102. The 2015 FEIR contains an extensive discussion of climate change, including the trend of rising temperatures and increasing wildfires, heat waves, and floods, and thoroughly evaluates the impact of the Project—that is, the continued permitting of oil and gas development pursuant to the Ordinance—on climate change, including consistency with plans, policies, and regulations adopted for the purposes of reducing greenhouse gas emissions. See SREIR (October 2020), Vol. 3, Section 4.7, Greenhouse Gas Emissions and Global Climate Change, and Vol. 7, at 7-263–271. The comment does not raise any issue that constitutes significant new information, because climate change and its indirect effects were known and addressed in the 2015 FEIR. See *Concerned Dublin Citizens v City of Dublin* (2013) 214 Cal.App.4th 1301 (the adoption of new guidelines for evaluation of greenhouse gas emissions was not significant new information requiring further CEQA review because information about the potential effects of those emissions was known and could have been addressed in connection with the certification of the original EIR). The comment also cites several studies that were in existence at the time the 2015 FEIR was certified. The 2015 FEIR contains a thorough discussion of the issues raised in this comment concerning the impact of continued oil and gas development on climate change, and the Project’s consistency with plans, policies, or regulations adopted for the purpose of reducing the emissions of greenhouse gases.

0009-110

The comment describes the health impacts indirectly affected by climate change as a result of severe weather events, air pollutants, and vector-borne diseases.

Please GR-1 – Beyond the Scope of the EIR. Climate change, including its indirect health impacts, is not one of the five topics required to be addressed in the SREIR. Please also see Response to Comment 0009-98 explaining what constitutes new or significant information under CEQA. Please also see Response to Comment 0009-102. The 2015 FEIR contains an extensive discussion of climate change, including the trend of rising temperatures and increasing wildfires, heat waves, and floods, and thoroughly evaluates the impact of the Project as it relates to climate change, including consistency with plans, policies, and regulations adopted for the purposes of reducing greenhouse gas emissions. See SREIR (October 2020), Vol. 3, at 4.7 (Greenhouse Gas Emissions and Global Climate Change), and Vol. 7, at 7-263–271. The comment does not raise any issue that constitutes significant new information, because climate change and its indirect effects were known and addressed in the 2015 FEIR. See *Concerned Dublin Citizens v City of Dublin* (2013) 214 Cal.App.4th 1301 (the adoption of new guidelines for evaluation of greenhouse gas emissions was not significant new information requiring further CEQA review because information about the potential effects of those emissions was known and could have been addressed in connection with the certification of the original EIR). The comment also cites to several studies that were in existence at the time the 2015 FEIR was certified. The 2015 FEIR contains a thorough discussion of the issues raised in this comment concerning the indirect

health impacts of climate change, and the Project's consistency with plans, policies, or regulations adopted for the purpose of reducing the emissions of greenhouse gases.

0009-111

The comment is a summary comment stating that there are deficiencies related to climate change in the Draft SREIR's analyses, and impacts related to climate change require analysis and mitigation to comply with CEQA. Please see GR-1 – Beyond the Scope of the SREIR. Climate change is not one of the five topics required to be addressed in the SREIR. Please see Response to Comment 0009-98 explaining what constitutes new or significant information under CEQA. Please also see Responses to Comments 0009-102, 0009-109, and 0009-110. The 2015 FEIR contains an extensive discussion of climate change, including the trend of rising temperatures and increasing wildfires, heat waves, and floods, and thoroughly evaluates the impact of the Project as it relates to climate change, including consistency with plans, policies and regulations adopted for the purposes of reducing greenhouse gas emissions. See SREIR (October 2020), Vol. 3, Section 4.7, Greenhouse Gas Emissions and Global Climate Change, and Vol. 7, at 7-263–271. The comment does not raise any issue that constitutes significant new information, because climate change and its indirect effects were known and addressed in the 2015 FEIR. See *Concerned Dublin Citizens v City of Dublin* (2013) 214 Cal.App.4th 1301 (the adoption of new guidelines for evaluation of greenhouse gas emissions was not significant new information requiring further CEQA review because information about the potential effects of those emissions was known and could have been addressed in connection with the certification of the original EIR). The 2015 FEIR contains a thorough discussion of the Project's potential impacts as they relate to climate change; the Project's consistency with plans, policies, or regulations adopted for the purpose of reducing the emissions of greenhouse gases; and adopted mitigation measures to address potential impacts related to climate change. See SREIR (October 2020), Vol. 5, at 7-68–69.

0009-112

The comment states that the SREIR must be updated to analyze potential impacts to each of six species of legless lizard (*Anniella*) and must consider feasible mitigation measures such as avoidance of legless lizard habitat. The comment cites a 2019 study that the comment states provides new information about the species as well as modeling for the newly identified species' habitats. See Parham et al. (2019).

The SREIR does not require discussion of this issue. The Project was unanimously approved and certified by the Kern County Board of Supervisors on November 9, 2015. Several lawsuits were filed challenging the 2015 FEIR. On February 25, 2020, the Court of Appeal issued a decision upholding the 2015 FEIR against all claims except for five areas in which the FEIR did not comply with CEQA: (1) mitigation of water supply impacts; (2) impacts from PM_{2.5} emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well HRA. See Slip Opinion, at p. 140. On June 12, 2020, the Superior Court issued a Modified Judgment consistent with the Court of Appeal's decision. The County was directed to set aside its certification of the 2015 FEIR and approval of the Ordinance and to prepare a supplemental CEQA review correcting the five defects before reapproving the Ordinance. The Court of Appeal's decision and the Modified Judgment are consistent with controlling caselaw, which provides that, where a court decision requires the lead agency to correct specific defects in an EIR, the agency need not start the EIR process anew and is required only to address the specific issues identified by the court for correction. See GR-1 – Beyond the Scope of the SREIR. This is not one of the five issues that the Court of Appeal's decision and Modified Judgment directed analysis of before considering certification of the SREIR. The Superior Court and Court of Appeal resolved all other CEQA claims in favor of the County, including impacts related to biological resources. The County was not required to include the issues raised by comment in the SREIR. This issue did not need addressing in the SREIR because it does not constitute a "changed circumstance" or "new information" requiring supplemental environmental review under CEQA. A supplemental EIR is not required unless:

- Substantial changes to the proposed project, or to the circumstances under which the project is undertaken, will require major revisions of the prior EIR due to new or substantially more severe environmental impacts; or
- New information of substantial importance is available, which was not known and could not have been known when the prior EIR was certified, shows that the project will have new or substantially more severe environmental impacts; or new information of substantial importance is available, which was not known and could not have been known when the prior EIR was certified, shows that mitigation measures or alternatives previously found infeasible, or considerably different from those analyzed in the prior EIR, would substantially reduce significant impacts, but the project proponents decline to adopt the mitigation measure or alternative. Cal. Pub. Resources Code § 21166; CEQA Guidelines § 15162.

As the California Supreme Court has explained, the provisions governing supplemental CEQA review "are designed to balance CEQA's central purpose of promoting consideration of the environmental consequences of public decisions with interests in

finality and efficiency.” *Friends of College of San Mateo Gardens v. San Mateo County Community College Dist.*, (2016) 1 Cal.5th 937, 949.

The comment does not raise either substantial changes in circumstances or new information requiring supplemental analysis under CEQA. The 2015 FEIR found that the silvery legless lizard (*Anniella pulchra*), Bakersfield legless lizard (*A. grinnelli*), and Temblor legless lizard (*A. alexanderae*) all had the potential to occur within the Project Area. See SREIR (October 2020), Vol. 3, at 4.4-89. Although little was known about the Temblor and Bakersfield legless lizards at the time the 2015 FEIR was published, the 2015 FEIR conservatively considered those species as “special status” due to the status of the silvery legless lizard as a California Species of Special Concern. See SREIR (October 2020), Vol. 3, at 4.4-89. As described under Impact 4.4-1 of the 2015 FEIR, potential impacts to the three species of legless lizard were evaluated based on their potential occurrence in each Project Area tier and Subarea. Specifically, the 2015 FEIR found that the silvery legless lizard had the potential to occur within Tiers 2 and 3 of all Subareas, and the Bakersfield legless lizard and Temblor legless lizard had the potential to occur within Tiers 1-4 of all Subareas. See SREIR (October 2020), Vol. 3, at 4.4-73, 78.

The 2015 FEIR modeled silvery legless lizard habitat by tier and Subarea and provided summaries of potential impacts to silvery legless lizard habitat by Project Subarea and tier. See SREIR (October 2020), Vol. 3, at 4.4-90, Figure 4.4-28; see also SREIR (October 2020), Vol. 3, at 4.4-190–192. The 2015 FEIR also analyzed the amount of total modeled silvery legless lizard habitat that could be impacted by the projected annual level of disturbance from the Project over 25 years. See SREIR (October 2020), Vol. 3, at 4.4-198. The 2015 FEIR assumed that, based on Papenfuss and Parham (2013), all legless lizards expected to occur within the Project Area would be *Anniella pulchra*, *A. grinnelli*, or *A. alexanderae*. Given the extremely limited distribution information available for *A. grinnelli* and *A. alexanderae*, all three species were discussed together. In particular, URS statistical-based model data for *A. pulchra* had good predictive power and included all three species of legless lizard. See SREIR (October 2020), Vol. 3, at 4.4-89, 90. While Parham et al. (2019) expanded the ranges of *A. alexanderae*, *A. campi*, and *A. stebbinsi*, the study does not indicate that habitat for *A. campi* and *A. stebbinsi* is primarily within Kern County or that habitat for any of the five *Anniella* species within Kern County is outside of the Subareas or tiers identified and studied in the 2015 FEIR. Nor does the report indicate, as the comment suggests, that “some [*Anniella*] species may be disproportionately harmed due to their habitats’ proximity to projected oil and gas activity.” For *A. campi*, Parham et al. (2019) reported that modeling was problematic due to the small number of collected samples. For *A. stebbinsi*, the study’s primary result was expanding the species’ range in Ventura and Santa Barbara Counties. Given the limited information and need for further study identified in Parham et al. (2019), it remains appropriate to treat the legless lizard species together.

The 2015 FEIR incorporated several conservative assumptions in its analysis of potential impacts on the three species of legless lizard identified in the 2015 FEIR. Potential impacts on non-modeled special status species were conservatively analyzed to assume that impacts will occur even in areas where there is an extremely low likelihood of species impact. The 2015 FEIR grouped special-status species that occur within the Project Area into categories. Category 1 species include those that are “known or likely to occur in the Project Area and for which one of four types of habitat sustainability modeling data was available and used to qualify and analyze potential Project impacts by subarea and tier based on conservative assumptions regarding the level of future Project-related activities.” See SREIR (October 2020), Vol. 3, at 4.4-32. Category 2 species are those “known or likely to occur in the Project Area for which modeling data were not available to quantify and analyses potential Project impacts.” See SREIR (October 2020), Vol. 3, at 4.4-32. The 2015 FEIR evaluated impacts to Category 2 species by “identifying the subareas and tiers where these species could occur and by considering the level of potential new disturbance in each location based on conservative assumptions regarding the level of future Project-related activities.” See SREIR (October 2020), Vol. 3, at 4.4-32. The 2015 FEIR classified the silvery legless lizard as a Category 1 species and categorized the Bakersfield legless lizard and Temblor legless lizard as Category 2 species. See SREIR (October 2020), Vol. 3, at 4.4-73, 78. The 2015 FEIR conservatively considered impacts to the Bakersfield legless lizard and Temblor legless lizard even though no modeling data were then available for those species.

The comment also states that the SREIR should consider feasible mitigation measures such as avoidance of legless lizard habitat. MM 4.4-3, requiring use of protective buffers where protected or sensitive species are found, includes a minimum 30-foot buffer zone for the silvery legless lizard. In response to the comment, MM 4.4-3 has been clarified to state that the buffer zone is for all legless lizards:

Disturbance Buffers for Sensitive Resources

Sensitive Resource	Buffer Zone from Disturbance (feet)
Potential San Joaquin kit fox den	50
Known San Joaquin kit fox den	100
Natal San Joaquin kit fox den	500
Atypical San Joaquin kit fox den	50
Rodent burrows	50
Listed bird species active nests	0.5 mile
Burrowing owl burrow (breeding and non-breeding season)	Pursuant to California Department of Fish & Wildlife guideline (see Table 4.4-85)
San Joaquin coachwhip, silvery all legless lizard species , coast horned lizard	30
American badger:	
Non-maternity dens	50
Maternity dens	200
Special-status plants	50

Additional mitigation measures in the 2015 Final EIR and the SREIR that reduce or avoid significant impacts to special status species include MM 4.4-1, requiring biological reconnaissance and focused/protocol surveys to identify and implement avoidance and minimization measures; MM 4.4-13, requiring a Worker Environmental Awareness Program prior to disturbance activities, which must provide training to recognize, avoid, and report to the qualified biologists any biological resources on the site; MM 4.4-14, requiring a suite of measures to avoid and minimize potential significant adverse impacts to protected and sensitive species, including speed limits, restrictions on night-time disturbance activities, measures to avoid wildlife entrapment, and dust control measures; and MM 4.4-15, requiring mitigation of ground disturbance activities at a 1 to 1 ratio. These and other measures would benefit all legless lizard species in the Project Area.

0009-113

The comment states that the SREIR must update its analysis of biological resources to include several new findings from a 2017 study, Fiehler, C.M. et al., *Effects of Oil and Gas Development on Vertebrate Community Composition in the Southern San Joaquin Valley, California*, Global Ecology & Conservation 9 (2017) 131–141, including findings related to loss, degradation and fragmentation of saltbush scrub habitat associated with hydrocarbon production activities; increased prevalence of invasive species where oil and gas activities are at higher densities; and impacts to native species, including bird and small mammal species, from oil field disturbance, including reduction in native species and increase in non-native species with increases in oil field density.

Please see GR-1 – Beyond the Scope of the SREIR. The SREIR is required only to address the specific issues identified by the Court of Appeal. The issues brought up by the comment are not included in the five issues that the Court of Appeal decision and Modified Judgment direct the County to analyze before considering certification of the SREIR. Please see Response to Comment 0009-112. The County was not required to address this issue in the SREIR because it does not constitute a “changed circumstance” or “new information” requiring supplemental environmental review under CEQA. The 2015 FEIR analyzed potential impacts to Valley Saltbush Scrub habitat by Subarea and tier. See SREIR (October 2020), Vol. 3, at 4.4-217–218. Oil and gas exploration and production activities maintain wildlife movement to a greater extent than urban development and some agricultural uses. See SREIR (October 2020), Vol. 3, at 4.4-222. A 2011 study conducted for the Bureau of Land Management found that species assemblages in saltbush scrub habitat remain relatively intact in oilfield locations with up to 70 percent disturbance in Kern County, indicating that even moderately developed oilfields would retain the capacity for wildlife movement. See SREIR (October 2020), Vol. 3, at 4.4-222, citing Fiehler, C. A. and B. L. Cypher, 2011, *Ecosystem Analysis of Oil Fields in Western Kern County, California*, Unpublished Report Prepared for Bureau of Land Management, Bakersfield Field Office, Bakersfield, California. The study found that native species (including some special-status species) persist in areas of oil and gas field development up to a “medium level of disturbance” (ranging from 15 percent to 70 percent of the area disturbed). The study also found that species such as Le Conte's Thrasher, San Joaquin antelope squirrel, and short-nosed kangaroo rat were present on all but the most disturbed study plots, and at high levels of oil/gas field development. However, the 2015 FEIR also noted that oilfield development with more than 70 percent disturbance could reduce species movement, and potential impacts to wildlife movement in higher density locations would be significantly impacted by Project activities without mitigation. The 2015 FEIR concluded that implementation of the Biological Resources mitigation measures—along with other mitigation measures related to dust control nighttime lighting, noise controls, and spill and hazardous material avoidance and containment—would reduce these wildlife movement impacts to less-than-significant levels. See SREIR (October 2020), Vol. 3, at 4.4-222.

The 2015 FEIR also recognized that direct impacts resulting from construction activities associated with the Project could include an increase in non-native and invasive species and noted that oil and gas activities could indirectly affect special status plants and wildlife by introducing invasive species. See SREIR (October 2020), Vol. 3, at 4.4-171, 174. The 2015 FEIR also discussed the effects of habitat fragmentation, edge effects, and density effects potentially resulting from the Project. See SREIR (October 2020), Vol. 5, Section 7.2.4, and Responses to Comments 0045-95 through 0045-100. The 2015 FEIR cited several studies to support the conclusion that oil and gas development in Kern County does not displace wildlife or interfere substantially with wildlife movement in the same manner as other development activities such as agricultural or urban development. See SREIR (October 2020), Vol. 5, Section 7.2.4, Responses to Comments 0045-95 through 0045-100.

0009-114

The comment states that the SREIR fails to analyze impacts to wildlife resulting from recent major oil and wastewater spills in the Project Area.

This issue did not require analysis in the SREIR. See GR-1 – Beyond the Scope of the SREIR. See also Response to Comment 0009-112. The SREIR is required only to address the specific issues identified by the Court of Appeal for correction. These issues are not any of the five issues that the Court of Appeal decision and Modified Judgment direct the County to analyze before considering certification of the SREIR. The Superior Court and Court of Appeal resolved all other CEQA claims in favor of the County, including impacts relating to biological resources.

The SREIR addresses potential impacts to wildlife from recent oil and wastewater spills. The SREIR (August 2020) discusses several recent suspected or confirmed spills and surface expressions in the Cymric, Midway Sunset, and McKittrick oil fields in Kern County. See Response to Comment 0009-123. This discussion of spills and surface expressions has been updated in the SREIR (October 2020) to include a more detailed discussion of the recent surface expressions that occurred in Kern County. See SREIR (October 2020), Vol. 1, at 4.9-183–184. Specifically, the SREIR notes that the Cymric incident resulted in four bird fatalities, none of which were species listed as threatened or endangered under California and federal law or identified as a bird species of special concern by the California Department of Fish and Wildlife. See SREIR (October 2020), Vol. 1, at 4.9-184. The 2015 FEIR discussed pipeline spills in Kern County associated with Pipeline and Hazardous Materials Safety Administration (PHMSA)-regulated pipelines and noted that those spills did not impact wildlife, aquatic habitats, or birds, or cause any water contamination. See SREIR (October 2020), Vol. 1, at 4.8-21. The 2015 FEIR also addressed impacts from spills from oil and gas activities on biological resources. See SREIR (October 2020), Vol. 5, Section 7.2.4, Response to Comment 45-101. The 2015 FEIR noted that a 2015 report analyzing the number of spills in Kern County and other areas throughout the state found that the number of spills in Kern County has generally decreased in recent years. See SREIR (October 2020), Vol. 5, Section 7.2.4, Response to Comment 0045-101; see also Caryotakis et al. (2015). Caryotakis et al. (2015) also found that Kern County had the lowest number of spills per year compared to other counties studied, and that most spills were properly reported and contained per existing regulations. The SREIR also includes 22 detailed mitigation measures to reduce the frequency and/or consequences of hazardous materials spills, thereby reducing the impacts of spills on species and ecosystems. See MM 4.8-1 through MM 4.8-22. MM 4.8-3 requires numerous spill prevention and cleanup measures, including construction activities allowing for easy cleanup of spills; construction crews that will have tools, supplies, and absorbent materials to contain and recover spilled materials; and storage of fuels and lubricants in designated staging areas. MM 4.8-4 requires several measures to prevent, repair, and remediate accidental leaks and spills from oil and gas operations. MM 4.9-2 requires operators to implement Best Management Practices during construction and operation, including maintaining wellheads, compressors, tanks, and pipelines in good condition without leaks or spills, and implementing spill prevention and response measures. MM 4.9-5 prohibits applicants from discharging produced water into any surface disposal facility unless the facility has received a Waste Discharge Requirement (or a waiver of this requirement) from the CVRWQCB. MM 4.9-5 provides that pursuant to the Senate Bill 4 regulations, well stimulation treatment fluids, and produced fluids from wells that have been stimulated cannot be stored, discharged, or disposed of into surface ponds or pits. These and other measures serve to reduce the impacts of spills on species and ecosystems.

0009-115

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

The comment asserts that several of the SREIR's changes to mitigation measures would "cede decision-making authority to a qualified biologist, who would control which mitigation measures apply and how to apply them," thereby eliminating opportunity for public review or input as to the types of measures implemented.

The discretionary decisions of others may be properly relied on, without the exercise of discretion by the County. *Sierra Club v. County of Sonoma* (2017) 11 Cal.App.5th 11. In that case, the court determined that the "provision that potentially conferred discretion requires a 50-foot setback for wetlands unless a wetlands biologist recommends a different setback... [A]lthough the details for the size of any setback for undesignated wetlands are left open, the Qualification is itself ministerial because the Ordinance provides that the setback will be whatever a wetlands biologist recommends. The actual size of the setback is not set, but the requirement to accept a biologist recommendation is set. Petitioners point to nothing demonstrating that the [County] had discretion under this provision or, even assuming there was some discretion, could mitigate potential environmental impacts to any meaningful degree." *Sierra Club v. County of Sonoma* (2017) 11 Cal.App.5th 11, 29-30 (internal quotation omitted).

The comment does not cite specific changes to mitigation measures that would purportedly "cede decision-making authority" to a qualified biologist. In response to the Court of Appeal's opinion, this SREIR includes modifications to a number of mitigation measures based on the County's supplemental analysis of the topic areas identified by the Court of Appeal. This SREIR modifies a number of other mitigation measures related to subject areas not identified as deficient by the Court of Appeal, including Biological Resources, to further clarify the ministerial permitting process by incorporating fixed standards and/or by removing or replacing less definite language such as requirements to apply mitigation "if feasible" or "minimize" impacts to an unspecified degree. Many of the revised Biological Resources mitigation measures in this SREIR are more conservative and protective than those in the 2015 FEIR. These modifications are consistent with *Sierra Club v. County of Sonoma*, *supra*, holding that a lead agency may properly rely on the opinion of a qualified biologist regarding mitigation measures, without exercising discretion itself. The modifications do not change the underlying requirement of the mitigation measures, nor weaken the standards inherent in the mitigation measures in any way. None of these changes will result in a new or more serve significant environmental impacts. The SREIR's changes to specific Biological Resources mitigation measures to improve and clarify the ministerial permitting process are described below

MM 4.4-1, relating to biological surveys, was modified to add requirements for the qualifications of the qualified biologist responsible for working on all reports submitted in support of applications for oil and gas activity permits, and for the biological monitor who must be present during ground-disturbing activities. MM 4.4-1 was also modified to eliminate language describing the purpose of the focused/protocol surveys as identifying and implementing "feasible" avoidance and minimization measures for protected species.

MM 4.4-3, relating to protective buffers to avoid incidental take of protected species, was modified to eliminate language requiring protective buffers to be used where effective and "feasible," and establishes a specific buffer zone of 500 feet for natal San Joaquin kit fox dens.

MM 4.4-5, relating to bat maternity roosts near the project site, was modified for clarity as follows:

- Removed language requiring bat maternity roosts be avoided during breeding periods "if required, and to the maximum extent feasible at other times."
- Removed language requiring applicants to contact wildlife agencies where an active roost location "cannot feasibly be avoided," in order to identify "appropriate impact minimization measures" before initiating surface disturbance that would affect the roost. Instead, MM 4.4-5 now requires the qualified biologist to consult with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife if an active maternity roost is proposed to be disturbed, requires the qualified biologist to "identify additional minimization measures which the qualified biologist determines with the wildlife agencies can actually be implemented based on field conditions," and requires that such measures be implemented for Project activities.

MM 4.4-6, relating to San Joaquin kit fox dens, was modified to remove language requiring hand excavation of dens if a potential den "cannot feasibly be avoided" and now provides that hand excavation is required if the "qualified biologist determines that an unoccupied den cannot be avoided."

MM 4.4-7, relating to American badger dens, was modified to clarify that maternity dens must be avoided "to the maximum extent feasible in the opinion of the qualified biologist," rather than merely "to the maximum extent feasible," as the prior

version provided. Also, MM 4.4-7 now requires implementation of additional minimization measures that the qualified biologist and wildlife agencies determine can actually be implemented based on field conditions.

MM 4.4-9, relating to avoidance measures for the California condor, was modified to specify that avoidance measures identified by the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife “must be implemented” by the qualified biologist before initiating or resuming any disturbance activity.

MM 4.4-10, regarding active bird nests, was modified to provide that work “shall” cease—rather than “should” cease, as the previous version provided—if behavioral changes are observed, until the qualified biologist consults with the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service, and the qualified biologist implements the recommended measures.

MM 4.4-12, relating to protected and sensitive plant species, was modified to eliminate language requiring use of “appropriate” material to identify protected and sensitive plant species, instead requiring use of “visible” material. MM 4.4-12 was also modified to remove language relating to “appropriate” buffer distances required to prevent incidental take of a listed plant; now, MM 4.4-12 requires that buffer distances be determined by the qualified biologist in consultation with the wildlife agencies.

MM 4.4-14 (formerly MM 4.4-15 in 2015 FEIR), relating to measures to avoid and minimize potential significant adverse impacts to protected and sensitive species, was modified to remove language requiring all activity to use previously disturbed areas “to the maximum extent feasible”; now, MM 4.4-14 requires the qualified biologist to delineate previously disturbed areas to minimize the amount of new disturbance. MM 4.4-14 was also modified to remove language requiring concrete and asphalt debris to be removed from the site for “proper” disposal, and instead now requires disposal of these materials at an “authorized, permitted facility.”

MM 4.4-18 (formerly MM 4.4-19 in 2015 FEIR), relating to oak woodland areas, was modified to remove language relating to avoidance of impacts to oak trees “to the maximum extent practicable, including modification of the disturbance area, if feasible, to avoid existing oak trees within a site.”

0009-117

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0009-118

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0009-119

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0009-120

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0009-121

The comment states that the SREIR must “analyze the extent of the [S]tate’s orphan and idle well crisis, and mitigate the industry’s instinct to shift its environmental liabilities onto the state’s taxpayers and burdened communities.”

Idle and orphan wells are regulated by the State of California, and not by the County. As described in the SREIR (August 2020), Section 4.9.3, Regulatory Setting, seeps, spills, or surface expressions from such wells are regulated under the new UIC regulations administered by CalGEM. The SREIR contains a detailed discussion of the UIC regulations, including requirements applicable to plugging and abandonment of wells. See SREIR (October 2020), Vol. 1, at 4.9-147–153. Idle wells are also

discussed in 2015 FEIR GR-2: Idle Wells, which explains that idle wells are properly considered part of the environmental baseline for the Project and describes and analyzes potential impacts associated with future well abandonment and reactivation of idle wells in the Project Area. Additionally, a new idle well process was added to the Revised Amended Ordinance. See Response to Comment 0006-2. The SREIR sufficiently addresses orphan and idle wells. The comment also states that the County cannot continue to issue new permits without supplementing the state's existing well bonding requirements to ensure that operators provide adequate financial assurances prior to commencing operations. The County is not the appropriate agency to regulate idle and orphan wells or to implement bonding requirements for such wells. As the comment notes, California law and CalGEM regulations require operators to file indemnity bonds with the State Oil and Gas Supervisor when the operator engages in the drilling, redrilling, deepening, or permanent alteration of the casing of a well. See Cal. Pub. Res. Code §§ 3204-3209; CEQA Guidelines § 1722.1. In some cases, CalGEM may accept other financial assurance in lieu of indemnity bonds. Cal. Pub. Res. Code § 3205.5. Additionally, life-of-well or life-of-facility bonds may be required for certain operators in an amount sufficient to ensure proper plugging and abandonment of each well, the safe decommissioning of each production facility, and the financing of spill response and incident cleanup. See Cal. Pub. Res. Code § 3270.4; CEQA Guidelines § 1722.8-1722.8.1.

0009-122

The comment states that the SREIR should consider requirements for permit applicants to submit "life-of-well" bonds that cover the actual expected costs of well plugging and removal.

Please see Response to Comment 0009-121. As noted in that response, state law and CalGEM regulations currently provide for indemnity bonding requirements, including life-of-well or life-of-facility bonds. The County is not the appropriate agency to implement these regulations. The comment also states that the SREIR should consider an alternative or mitigation measure requiring idle well plugging within a certain number of years. The plugging and abandonment of idle wells is regulated under state law. SREIR (October 2020) adds new MM 4.2-1.B, requiring removal of legacy unused oil and gas equipment (where legacy equipment is present and the applicant has the right to remove it) as partial mitigation for a different impact, conversion of agricultural land. New MM 4.2-1.B provides:

- B. No permit for a new well shall be issued if the applicant ~~has~~ owns or controls legacy unused oil and gas equipment on the same legal parcel. An applicant shall be deemed to own or control legacy equipment if, as of the date the application is filed, it is owned by (i) the applicant, (ii) an entity that controls or is controlled by the applicant, or (iii) an entity that has hired the applicant as an independent contractor. The legacy oil and gas equipment shall be removed inclusive of compliance with applicable legal requirements (e.g., well plugging and abandonment requirements under state or federal regulations), and restoration of the surface grade consistent with surrounding lands on the parcel completed before any new wells activity can commence. A full plan and details of actions needed to remove the legacy equipment shall be submitted with the site plan, be shown on a detail of the site plan, and be a condition of the approved permit. For farmland parcels in Tier 1, when both the surface and minerals are owned by the applicant, this measure does not apply. SREIR (October 2020), Vol. 1, at 4.2-31.

See also the discussion in SREIR (October 2020), Vol. 1, at 4.2-31–33.

0009-123

The comment states that the SREIR does not include updated information or analysis about recent spill events or wastewater pits that have resulted in soil contamination in Kern County.

The SREIR (August 2020) discusses several recent suspected or confirmed surface expressions in the Cymric, Midway Sunset, and McKittrick oil fields in Kern County. These events were not near population centers or sources of drinking water. See SREIR (October 2020), Vol. 1, at 4.9-152. The SREIR's discussion of surface expressions has been updated in the SREIR (October 2020) to include a more detailed discussion of the recent surface expressions that occurred in Kern County. See SREIR (October 2020), Vol. 1, at 4.9-183–184. The SREIR also states that wastewater and other operations-related fluids and chemicals can be spilled as a result of equipment leaks, including from pipes and storage tanks, as well as from casing and cement failures and human error, including from accidents involving the surface transport of products used and produced by the oil and gas industry. See SREIR (October 2020), Vol. 1, at 4.9-182. Additionally, the 2015 FEIR, Section 4.8, Hazards and Hazardous Materials, discussed pipeline spills in Kern County associated with PHMSA-regulated pipelines, including associated soil contamination. See SREIR (October 2020), Vol. 3, at 4.8-21.

The SREIR also includes 22 detailed mitigation measures to reduce the frequency and/or consequences of hazardous materials spills and soil contamination. See MM 4.8-1 through 4.8-22. For example, MM 4.8-3 requires numerous spill prevention and cleanup measures, including construction activities allowing for easy cleanup of spills, construction crews that will have tools, supplies and absorbent materials to contain and recover spilled materials, and storage of fuels and lubricants in designated staging areas. MM 4.8-4 requires several measures to prevent, repair, and remediate accidental leaks and spills from oil and gas operations. MM 4.9-2 requires operators to implement Best Management Practices during construction and operation, including maintaining wellheads, compressors, tanks, and pipelines in good condition without leaks or spills, and implementing spill prevention and response measures. MM 4.9-5 prohibits applicants from discharging produced water into any surface disposal facility unless the facility has received a Waste Discharge Requirement (or a waiver of this requirement) from the CVRWQCB. MM 4.9-5 also provides that pursuant to the SB 4 regulations, well stimulation treatment fluids, and produced fluids from wells that have been stimulated cannot be stored, discharged, or disposed into surface ponds or pits.

0009-124

The comment states that unlined disposal pits for drilling and fracking waste are documented sources of contamination, and that the SREIR should consider an alternative or mitigation measure that prohibits such waste disposal pits. As described in the 2015 FEIR GR-1: Water - Disposal into Unlined Ponds and Sumps, existing oilfield sumps are subject to CalGEM regulations including, but not limited to, 14 Cal. Code Regs. §§ 1760, 1770, 1775, and 1776. Project Area oilfield sumps and surface ponds are also regulated by the CVRWQB under state and, where applicable, federal water quality laws and regulations. The SREIR (October 2020) adds new MM 4.2-1.C, which provides that, on defined agricultural lands: "Siting and construction of new disposal ponds are prohibited." See SREIR (October 2020), Vol. 1, at 4.2-31.

Additionally, several SREIR mitigation measures require remediation of drilling mud sumps. MM 4.9-3 addresses cleanup of drilling mud sumps in the Project Area, providing that "[a]ny surface ponds or sumps must be cleared of fluids and muds in accordance with the State Water Resources Control Board general order, applicable Water Discharge Requirements and Division of Oil Gas and Geothermal Resources regulations." See SREIR (October 2020), Vol. 3, at 1-59. Similarly, MM 4.1-2 provides: "Earthen sumps used in drilling shall be filled within 90 days after any well has been placed in production (unless such sumps are to be used within six months for the drilling of another well), and any sump used in production shall be filled after its abandonment and restored to a uniform grade within ninety days." See SREIR (October 2020), Vol. 3, at 1-29.

The comment also cites studies regarding impacts of oil and gas activities to surface and groundwater resources and human health, including impacts related to disposal of produced water from wells that have been subject to well stimulation treatment, and states that the SREIR should incorporate these studies. The cited studies have been incorporated into the SREIR (October 2020). See SREIR (October 2020), Vol. 1, at 4.9-184—188. These studies demonstrate the ongoing study and analysis of the impacts of produced water disposal and well stimulation activities on groundwater. While some of the cited studies have limitations—for example, several of studies focus on hydraulic fracturing in other states, and the findings from these other states do not necessarily apply to California—they collectively provide additional evidence of the potential of oil and gas activities to violate water quality standards or waste discharge requirements, consistent with the analysis in Section 4.9, Hydrology and Water Quality, of the 2015 FEIR.

0009-125

The comment cites studies regarding impacts of oil and gas activities to surface and groundwater resources and human health, including impacts related to disposal of produced water from wells that have been subject to well stimulation treatment, and states that the SREIR should incorporate these studies.

The cited studies have been incorporated into the SREIR (October 2020). See SREIR (October 2020), Vol. 1, at 4.0009-184—188. These studies demonstrate the ongoing study and analysis of the impacts of produced water disposal and well stimulation activities on groundwater. While some of the cited studies have limitations, they collectively provide additional evidence of the potential of oil and gas activities to violate water quality standards or waste discharge requirements, consistent with the analysis in Section 4.9, Hydrology and Water Quality, of the 2015 FEIR.

0009-126

The comment states that the SREIR should be updated to address recent surface expressions in Kern County, as well as to address the change in the legality of steam injection above the fracture pressure.

As discussed in Response to Comment 0009-123, the SREIR (October 2020) has been updated to address several recent suspected or confirmed surface expressions in the Cymric, Midway Sunset, and McKittrick oil fields in Kern County. The SREIR includes a detailed description of the updated UIC regulations, including requirements relating to maximum allowable surface

injection pressure. See SREIR (October 2020), Vol. 1, at 4.9-147–150. The SREIR contains a thorough discussion of recent surface expression incidents in the County and current state regulations related to the allowable fracture pressure. The comment also states that the County must analyze and mitigate the air quality impacts from surface expressions and other spills. Please see Responses to Comments 0008-62 and 0006-8, which discuss the SREIR’s analysis of air quality impacts and emissions from sumps, pits, and ponds. Spills are considered upset conditions and not reasonably foreseeable; thus, the air quality analysis is not required to take these into consideration when analyzing the Project’s impacts on air quality. The comment states that the SREIR fails to analyze the risks from explosions and similar accidents. The 2015 FEIR discussed the safety and health hazards associated with oil and gas activities, including explosions and fires. See SREIR (October 2020), Vol. 3, at 4.8-16. The 2015 FEIR also discussed pipeline spills in Kern County associated with PHMSA-regulated pipelines, and notes that those incidents were not associated with any fatalities, injuries, explosions, or evacuations. See SREIR (October 2020), Vol. 3, at 4.8-21. The 2015 FEIR also noted that transportation accidents involving vehicles transporting hazardous materials can result in fires, explosions, clouds of vapors and gasses, or spills to land and water. See SREIR (October 2020), Vol. 3, at 4.8-72.

0009-127

The comment reiterates points made elsewhere in the comment letter, including the request that the County (i) extend the public comment period on the SREIR (August 2020); (ii) allow Spanish-speaking residents to participate in the public process on the SREIR.

Please see Responses to Comments 0009-2, and 0009-8 through 0009-9, respectively.

The comment also requests that the County reject the Project. Please see Response to Comment 0007-3. The reasons for not rejecting the Project were fully addressed in the 2015 FEIR’s analysis of the “No Project Alternative.” See 2015 FEIR, Vol. 3, at 7-356. The 2015 FEIR rejected the No Project Alternative as environmentally inferior, because the Project would substantially revise the County’s Zoning Ordinance with new development standards and conditions that would apply to all Project Area oil and gas exploration and production facilities. The 2015 FEIR explained that the Project’s development standards, conditions, and mitigation measures would include several new requirements that are more protective of the environment and human health than are existing land use regulations. The Project, therefore, offers more protective measures for new oil and gas development than would otherwise apply if the Project were to be rejected.

0009-128

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the SREIR and does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0009-129

The comment states that a redline-strikeout version of the revisions made to the 2015 FEIR should have been provided for the SREIR.

The SREIR provides all necessary information to substantiate the air quality analysis and meets all requirements under CEQA for environmental review.

0009-130

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the SREIR and does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

Specific responses to comments on the air quality analysis are addressed in Responses to Comments 0009-131 through 0009-159.

0009-131

The comment states the 2015 Vector Report and associated spreadsheets, which was cited throughout the Air Quality section of the Draft SREIR, were not made available for public review.

Please see GR - 1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the Court of Appeal’s judgment, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. The “Vector Report” was a draft report that was never completed and

is not an existing report that could be produced. The SREIR is not required to include these materials. Scientific, engineering, and technical reports and similar documents used to prepare an EIR need not be incorporated into the body of the EIR or in an EIR appendix. See *Ebbets Pass Forest Watch v Dept. of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 958 (nothing in CEQA requires that source materials be physically incorporated in an EIR). The fact that no “Vector Report” was ever finalized does not invalidate the underlying emission calculations in the SREIR. Those were provided during the 2015 FEIR process and, as the comment explains, were provided as spreadsheets and appendices with the 2015 FEIR. The spreadsheets that the comment found unavailable were unavailable because they were superseded by revised versions. There is no evidence that it was not possible to comment on the air quality analysis in 2015 or now, as multiple comments did this extensively during the 2015 FEIR process.

0009-132

The comment states Appendix I provides a different number of emission estimate tables than the 2015 FEIR provides.

Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the Court of Appeal’s judgment, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. The SREIR is not required to provide every table, spreadsheet, or model run supporting the air quality analysis. See Response to Comment 0009-131. There is no inherent inadequacy in providing a different number of tables in an appendix to the SREIR as compared to in the Air Quality section of the SREIR. The seven tables provided in Appendix I of the SREIR provide the basis for the majority of the calculations in the Air Quality section, and the 21 tables in the SREIR Section 4.3, Air Quality, segment and separate out some of the data in Appendix I for various sources to demonstrate how the air quality analysis arrived at the final emissions per well value utilized to inform the public of potential Project emissions and to establish mitigation values for the OG-ERA. As to the revised emission estimates in various tables in the 2015 FEIR, please see Response to Comment 0009-133.

0009-133

The comment states that the 2015 FEIR provided substantially revised and reduced emissions estimates in 11 tables in the Air Quality section based on Appendix M-4, ANT Proposal: Emissions Validation and Mitigation Menu (ANT Report), which utilized spreadsheets identified in 0009-131 to identify two substantial errors.

Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the Court of Appeal’s judgment, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. As identified by the comment, the revisions to various tables in the 2015 FEIR were the result of calculation errors in the original spreadsheets used to estimate Project emissions. The *ANT Proposal: Emissions Validation and Mitigation Menu* (ANT Report) suggested corrections to the tables that were in the 2015 Draft EIR. See SREIR (October 2020), Vol. 7, Appendix M-4. These revised emission estimates were incorporated into the 2015 FEIR based on substantial evidence supporting their accuracy. This comment does not state a specific concern related to the adequacy of the SREIR and does not require a detailed response.

0009-134

The comment states several of the summary tables for emissions estimates presented in the SREIR (and 2015 FEIR) are inconsistent with the ANT Report.

Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the Court of Appeal’s judgment, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140.

The comment states that Table 4.3-13 in the SREIR differs from estimated emissions in the ANT Report. The ANT Report was a submission to be considered for the 2015 FEIR. The calculations in the ANT Report were analyzed, vetted, and incorporated into the 2015 FEIR where appropriate. The 2015 FEIR tables, and the SREIR tables, removed emissions from cogeneration facilities as compared to the ANT Report emission values, which explains the difference between the ANT Report table referenced in the comment and Table 4.3-13. This is because the likelihood that a new cogeneration facility would be built or an existing facility expanded as part of the Project was considered to be very low due to the availability of energy in the Project Area (both cogeneration and renewable wind and solar), the fact that any sales to the grid from a future cogeneration facility would likely be at a loss, and the fact that mitigating for greenhouse gas emissions from such a facility would make it uneconomical. No cogeneration facility has been built in the Project Area in the past 20 years. The SREIR included cogeneration facilities as potentially necessary new facilities in Tables 4.3-11a and 4.3-11b based on the number of wells projected to be developed under the Project. Knowing that enough energy sources are present in Kern County to support

future wells with Project implementation and that future development of a cogeneration facility is highly unlikely, potential emissions associated with constructing any cogeneration units were not included in Table 4.3-12. Thus, total emissions in Table 4.3-13 are slightly different than those shown in the ANT Report (which includes cogeneration emissions). The SREIR (October 2020), Vol. 1 at 4.3-101, has been revised to explain this methodology in response to the comment.

0009-135

The comment states the total emissions shown in summary Table 4.3-19 for 2035 total estimated emissions does not correspond to the estimated emissions shown in Tables 4.3-15 through 4.3-18.

Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the Court of Appeal’s judgment, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. The identified discrepancies between total criteria pollutant emissions due to well construction activities in Table 4.3-19 and the combined values of Table 4.3-15 through 4.3-18 amount to less than 100 tons per year (tpy) for all criteria pollutants combined. Tables 4.3-15 through 4.3-19 can be found in the SREIR (October 2020), Vol. 1, at 4.3-105–109. The values in Table 4.3-19 are also higher than the values in Tables 4.3-15 through 4.3-18. Thus, Table 4.3-19 is conservative and may overstate by a small amount the Project emissions due to well construction. Due to the multiple data sources that these values came from, and the inherent rounding in emission modeling when calculations can run to 4 or 5 decimal points, it is common to have small variations in values as tables are tabulated and rounded at various times in the air quality analysis process. There is less than 100 tpy discrepancy between tables. This does not make the SREIR inadequate, especially when the table that is utilized to determine Project impacts and required mitigation (Table 4.3-19) overestimates emissions.

0009-136

The comment states that summary Table 4.3-27 fails to provide citations or source information to the applicable source tables and should clarify that activities are “well” activities. The comment further states that the calculations presented in summary Table 4.3-27 do not correspond to the estimated emissions in other tables.

Please see GR -1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the Court of Appeal’s judgment, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140.

The comment states that the SREIR should be revised to clarify that “drilling” means “well drilling.” These terms are interchangeable.

The comment also states that the SREIR should provide citations to the source tables for the total annual estimated emissions in Table 4.3-27. The SREIR explains which categories of emissions were totaled to result in the values presented in Table 4.3-27. See SREIR (October 2020), Vol. 1, at 4.3-123. The comment states that Table 4.3-27 overstates emissions as its values do not match up with the totals from Table 4.3-12, Tables 4.3-14 through 4.3-18, and Tables 4.3-20 through 4.3-25 when they are summed. As explained in the SREIR (October 2020), “The annual emissions from operation of permitted equipment have been calculated by dividing the projected change in the permitted equipment emissions at Project build-out in 2035 by the number of Project years from 2015 to 2035 (i.e., 21 years).” See SREIR (October 2020), Vol. 1, at 4.3-123. The values in the table provided in the comment purport to represent Table 4.3-20 but are incorrect. Those values should be divided by 21 to come to a per-year emission estimate before being summed with the totals from the other tables. When this error is corrected, the values for the discrepancy drop to approximately: NO_x 472.53 tpy, ROG 1,206.3 tpy, PM₁₀ 71.92 tpy, and PM_{2.5} 318.92 tpy. Further subtracting the slight deviations identified in Response to Comment 0009-134, the values fall further to: NO_x 378.29 tpy, ROG 1,204.2 tpy, PM₁₀ 70.56 tpy, and PM_{2.5} 318.33 tpy. Some of the tables being summed in the comment represent emissions per year in 2035 while others represent “average” annual emissions. Due to the implementation over time of various laws and regulations that tend to lower emissions from the Project, as shown by the declining values of total Project emissions over time in Table 4.3-27, summing the tables as the comment has done does not represent total emissions for the Project in 2035. This approach is like comparing apples to oranges and results in slightly variable emission values. Table 4.3-27 instead summarizes actual emission data from 2035, leading to slight variations between the comment’s summed data and the data in Table 4.3-27. There are also likely to be slight deviations when adding totals from various tables rather than calculating a total value, as was done in Table 4.3-27, due to rounding. See Response to Comment 0009-134. Even if the comment’s sums were accurate, the Project’s total calculations in Table 4.3-27 are conservative and slightly overstate Project emissions.

0009-137

The comment states that a conclusion asserting discrepancies in the emission estimate summary tables, and the lack of available supporting documents in the form of Vector Report spreadsheets, result in inadequate and unsupported emissions data provided in the SREIR.

Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the Court of Appeal's judgment, these are the only air quality topics required to be addressed in the SREIR. Please see Responses to Comments 0009-128 through 0009-136. As to the comment's assertion that the HRAs are flawed, this comment does not state a specific concern related to the adequacy of the SREIR and does not require a detailed response.

0009-138

The comment states that Table 4.3-3 is inadequate, incorrect, and incomplete.

Please see Responses to Comments 0009-139 and 0009-140.

0009-139

The comment notes that maximum concentrations should be identified separately for state and federal standards.

This is correct. A formatting mistake while preparing the SREIR for printing erroneously cut off the last column of the table. This has been remedied in the SREIR (October 2020), Vol. 1, at 4.3-8-10. Table 4.3-3 has also been revised for clarity to incorporate the comment's other suggestions regarding the labeling of maximum 24-hour concentrations and the units of measurement for each pollutant.

0009-140

The comment states that Table 4.3-3 should include the estimated number of days that various monitoring stations exceeded the state and federal standards for PM_{2.5} and PM₁₀ rather than, or in addition to, the measured number of days that various monitoring stations exceeded the state and federal standards for PM_{2.5} and PM₁₀.

Table 4.3-3 has been updated to include both values. See SREIR (October 2020), Vol. 1, at 4.3-8–10.

0009-141

The comment states that the discussion of the different health effects of PM₁₀ and PM_{2.5} is deficient.

The SREIR (August 2020) discusses the different health effects of PM₁₀ and PM_{2.5} and states that PM_{2.5} is especially dangerous as it contains particles small enough to penetrate the lungs. See SREIR (August 2020), Vol. 1, at 4.3-13. To increase clarity in the document, some of the comment's recommended language has been inserted into the discussion of PM₁₀ and PM_{2.5} health effects in the SREIR (October 2020). See SREIR (October 2020), Vol. 1, at 4.3-14–16, 28. The SREIR (August 2020) includes a discussion of visibility reducing particles (SREIR (August 2020), Vol. 1, at 4.3-17), but the SREIR has been revised to add a further discussion of the impacts of PM on visibility, as suggested by the comment (SREIR (October 2020), Vol. 1, at 4.3-16). The SREIR also discusses various studies that address potential relationships between various pollutants, including PM, and health effects. See SREIR (October 2020), Vol. 1, at 4.3-28–41.

0009-142

The comment first summarizes the discussion of MM 4.3-8 and the OG-ERA in the Court of Appeal case decision. The comment next states that the SREIR discussion of MM 4.3-8 and how the OG-ERA will effectively mitigate for PM_{2.5} is insufficient to meet the Court's mandate.

Please see Response to Comments 0009-143 through 0009-148.

0009-143

The comment suggests revisions to the SREIR, including Table 4.3-EE (Table 4.3-AA in the SREIR (August 2020)) regarding clarifying that, when segmenting PM emissions, there are emissions of PM_{2.5} and PM_{2.5-10}.

These revisions have been made for clarity. See SREIR (October 2020), Vol. 1, at 4.3-139–140. These revisions do not affect the calculations in Table 4.3-EE or the underlying justification for either the air quality impact analysis in the SREIR or the validity of MM 4.3-8's ability to mitigate for PM_{2.5} emissions.

0009-144

The comment states that the SREIR fails to demonstrate that sufficient emission reduction projects are available to offset Project-related PM_{2.5} emissions.

Please see Responses to Comments 0009-17 through 0009-21. The comment does not provide any evidence that the SJVAPCD has a shortage of projects, but merely asserts that there may not be enough pollution-reducing projects in the San Joaquin Air Basin to reduce the Project emissions to net zero. The mitigation fee in MM 4.3-8 and the OG-ERA is tied to the SJVAPCD's ISR Annual Report, and thus the cost of air mitigation fees will continue to adjust to match current year costs for emissions mitigation. The statement in the SREIR as to potential estimates of fees collected over the life of the Project is an estimate. This estimate may over- or understate the mitigation fees available over the life of the Project. The fact that more mitigation fee monies may be collected than in the history of the ISR and Voluntary Emissions Reduction Agreement (VERA) programs at the SJVAPCD does not mean that the monies collected will go unspent or that emission reduction projects to fund will not be available. The SJVAPCD is carrying a small portion of the mitigation fees over to 2021. CEQA does not require the SREIR to identify emission reduction projects now, and the OG-ERA is expected to fully offset Project emissions. See SREIR (October 2020), Vol. 1, at 4.3-133–142.

The Court of Appeal expressly held that any potential lag time between Project activities and funding and development of emission reduction projects did not invalidate MM 4.3-8 and the OG-ERA. Please see Responses to Comments 0009-17 through 0009-21. In addition, larger scale programs can now be accomplished by the SJVAPCD due to the consistent pace of the permitting which provides for more funding. The table referenced in the comment provides examples of various emission reduction projects that could be implemented under the OG-ERA. The table is described as “examples of potential projects and costs”; it is not meant to be inclusive of how all of the monies obtained by the mitigation fees in MM 4.3-8 will be spent. Support for these estimated costs is not necessary. It is not feasible to identify and commit to specific projects to provide the emission reductions necessary under the OG-ERA in each year through 2035. See SREIR (October 2020), Vol. 1, at 4.3-135. One of the benefits of a mitigation fee program that does not identify projects 15 years out from their implementation is that monies collected under the program in future years can be spent on emission reduction projects that are not contemplated in 2020. It is impossible to envision to what purpose mitigation fee monies might be put in 2025 or 2035. The OG-ERA allows for mitigation fees to be spent on the most effective emission reduction projects available at the time the fees are received.

0009-145

The comment states that the SREIR does not demonstrate that the OG-ERA would result in sufficient PM_{2.5} emission reductions to achieve as close to a “no net increase” in PM_{2.5} emissions as possible.

Please see Response to Comment 0009-17, which explains the requirements for a fee-based mitigation program under CEQA. CEQA does not require a fee-based mitigation program to prove that it is effective by identifying emission reduction projects specific to PM_{2.5} before implementation of the fee program. The Court of Appeal did not require that in its Judgment. The Court of Appeal stated that MM 4.3-8 must be enforceable as to PM_{2.5}. MM 4.3-8 is enforceable as to PM_{2.5} as it has been amended to add PM_{2.5} as one of the criteria pollutants that must be offset. See SREIR (October 2020), Vol. 1, at 4.3-164–166.

The comment also states that a large amount of the PM emission reductions from projects identified in the SJVAPCD's ISR Annual Report may be attributable to fugitive dust PM₁₀ rather than combustion PM_{2.5}. This is speculative, since the comment does not present evidence that PM_{2.5} emissions are not being offset with mitigation fee monies collected under the OG-ERA. The SREIR does provide evidence that various emission reduction projects, implemented with mitigation fee monies from the OG-ERA that will reduce PM, will result in a large fraction of PM_{2.5} emission reductions as compared to PM_{2.5-10}. See SREIR (October 2020), Vol. 1, at 4.3-140. Table 4.3-EE demonstrates that it is likely that future funded emission reduction projects will reduce PM_{2.5} in a way that is adequate to mitigate the small fraction of PM emissions from the Project that are PM_{2.5} (35 percent of PM emissions are PM_{2.5} while 65 percent of PM emissions are PM_{2.5-10}). CEQA does not require mitigation fee programs to track implementation in the particular way requested by the comment. The SJVAPCD as the expert agency for air quality in the Project Area is vested with authority to implement the OG-ERA program, and it is expected that they will do their duty under law. In assessing the adequacy of mitigation programs, courts presume that agencies will comply with their own ordinances and requirements. *City of Marina v. Board of Trustees of California State University* (2006) 39 Cal.4th 341, 365; *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 140-141.

0009-146

The comment states that, thus far, the majority of VERA-funded emission reduction projects as reported in the SJVAPCD's ISR Annual Report target NO_x. These are some of the projects that mitigation fee monies from the OG-ERA have funded.

The comment states that, from 2014 to 2019, 89.9 percent of total funded emission reductions were NO_x, while 11.1 percent of total funded emission reductions were PM₁₀. The comment also states that in 2019, the percentage of PM₁₀ reductions as compared to total reductions was 5.2 percent.

Please see Responses to Comments 0009-145 and 0009-17. The annual average emissions from Table 4.3-32 in the SREIR show that PM_{2.5} is only 2.4 percent of total Project emissions. See SREIR (October 2020), Vol. 1, at 4.3-132–133. Comparing the PM_{2.5} emissions to NO_x emissions, this table projects that 3.6 percent of those combined emissions are PM_{2.5}. The historic reductions the comment cites are removing over three times the PM_{2.5} that is being generated by the Project (as a percentage of the total Project emissions being charged mitigation fees under the OG-ERA).

0009-147

The comment states that a large portion of funded emission reduction projects may reduce PM_{2.5–10} rather than PM_{2.5}, based on a review of the emission reduction projects funded by the SJVAPCD thus far.

Please see Responses to Comments 0009-17, 0009-145, and 0009-146. This comment is speculation, and the comment acknowledges that it is unknown and unknowable whether OG-ERA funds were used to support the specific projects mentioned in the comment.

0009-148

The comment states that PM_{2.5} emission reductions funded by the OG-ERA should be tracked separately from PM₁₀ emission reductions.

While it is possible to speciate PM_{2.5} and PM₁₀, as evidenced by Table 4.3-EE that does not mean that CEQA requires a fee-based mitigation measure for air quality to track emission reductions by pollutant to be valid. See SREIR (October 2020), Vol. 1 at 4.3-140). The SREIR and past implementation of the OG-ERA demonstrate that PM_{2.5} is being reduced in sufficient quantities as compared to its percentage of total project emissions and that likely future emission reduction projects will overwhelmingly reduce PM_{2.5} as compared to PM_{2.5–10}. See SREIR (October 2020), Vol. 1, at 4.3-133–142. It is also true that segregating and tracking PM_{2.5} separately from PM₁₀ is more difficult than separately tracking pollutants that do not overlap in the way that PM_{2.5} and PM₁₀ do (such as NO_x and ROG). Table 4.3-EE is an example of likely average speciation between general categories of potential emission reduction projects, such as replacing internal combustion engines. However, to speciate PM from specific projects would require a more detailed and specific analysis than provided in Table 4.3-EE. Addressing PM_{2.5} and PM₁₀ jointly is also the approach that SJVAPCD has taken in both its attainment plans and state implementation plans, and the approach it has taken in other VERAs and its ISR. As the expert agency with responsibility for air quality in the Project Area, the SJVAPCD can be relied upon to implement the OG-ERA in a way that is legally valid and adequate under CEQA.

The comment states that this approach is acceptable under CEQA as the San Joaquin Valley Air Basin is still in nonattainment for state and federal PM_{2.5} standards. Being in nonattainment for PM_{2.5} does not affect whether the SJVAPCD can decide to approach its PM_{2.5} and PM₁₀ emission reductions in a joint fashion. Nothing in CEQA supersedes the SJVAPCD's authority to approach emission reduction offsetting requirements and tracking in the same in the way that is most effective and valid as determined by the expert agency. While the SREIR states that the expectation is that the OG-ERA will achieve PM_{2.5} emission reductions from the emission reduction projects funded by the OG-ERA to mitigate for Project emissions, it is also required in the SREIR that MM 4.3-8 be implemented, and MM 4.3-8 requires a program whereby applicants "shall pay fees to fully offset Project emissions of NO_x, ROG, PM₁₀, and PM_{2.5}." The requirement in MM 4.3-8 to pay fees to fully offset PM_{2.5} emissions is a valid and enforceable mitigation measure under CEQA. It does not mandate that the SJVAPCD or the County track the emission reductions that are achieved in any specific way.

While the County does not have jurisdiction to independently modify the manner in which the SJVAPCD tracks its emission reduction projects, MM 4.3-8 creates an obligation for each applicant to fully offset Project emissions of PM_{2.5}, whether through fees or through direct emission reduction projects. This requirement is incorporated into the Ordinance as a requirement for permit compliance. If projects funded through the OG-ERA are demonstrated to inadequately mitigate for emissions of either PM₁₀ or PM_{2.5}, the Ordinance authorizes the County to take enforcement action. Under Kern County Zoning Code § 19.102.020, any permit can be revoked by the County where any term or condition of the permit has not been complied with. See also SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-168–172 (2015 FEIR GR-19: Enforcement of Mitigation Measures and Ordinance).

Kern County Code § 8.54.040 provides that any person who violates any provision of the County zoning regulations may be issued an administrative citation for each day such violation is allowed to continue. Since the Ordinance would require permit applicants to comply with each implementation standard and condition, any failure to maintain compliance would constitute a continuing administrative violation subject to penalty for each day the violation is allowed to continue. Administrative penalties for a violation of the zoning regulations are assessed as a fine not to exceed \$250 for the first violation, \$500 for the second violation, and \$1,000 for each additional violation thereafter within one year from the date of the first violation. Any public official may also petition the Board of Supervisors to increase the fine amount, which the Board may approve at its discretion. Failure to pay an administrative penalty is subject to a civil action initiated by the County to collect the unpaid fines with interest, as well as to seek reimbursement of costs to enforce, investigate, establish, and collect such fines. Pursuant to Kern County Code § 19.114.060, any person who causes or permits a violation of any County zoning regulation commits a misdemeanor that, upon conviction, is punishable by a maximum fine of \$1,000 or by imprisonment for up to six months, or both. Each day the violation continues constitutes a separate offense. Per the County Code, stacking cumulative punishments for each day a zoning violation is continued is allowed, a practice upheld by the courts in *People v. Djekich* (1991) 229 Cal.App.3d 1214, 1224. Since the Ordinance would require permit applicants to comply with each Implementation Standard and Condition, any failure to maintain compliance would constitute a continuing misdemeanor violation subject to criminal prosecution for each day such violation is allowed to continue. Penalties and sanctions are therefore enforceable for developments that fail to meet MM 4.3-8. Please see Responses to Comments 0009-17 and 0009-145 through 0009-147.

0009-149

The comment states that it is not clear how MM 4.3-1 through MM 4.3-4 would be enforced and that new mitigation measures are available that should be required.

The scope of the Court of Appeal's decision did not include air quality impacts beyond those related to PM_{2.5} emissions, MM 4.3-8, and the multi-well HRA. See GR-1 – Beyond the Scope of the SREIR. CEQA does not require the SREIR to modify other portions of the air quality impact analysis. As to MM 4.3-2 through MM 4.3-4, applicants are required to confirm in project application that they will implement their projects in accordance with these requirements. The SJVAPCD's dust suppression regulations also have recordkeeping requirements, and the SJVAPCD oversees and enforces this requirement. As to MM 4.3-2, the SREIR requires compliance with the SJVAPCD's fugitive dust suppression regulations. "A condition requiring compliance with regulations is a common and reasonable mitigation measure." *Oakland Heritage Alliance v. Oakland* (2011) 195 Cal.App.4th 884, 906. In assessing the adequacy of mitigation programs, courts presume that agencies will comply with their own ordinances and requirements. *City of Marina v. Board of Trustees of California State University* (2006) 39 Cal.4th 341, 365; *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 140-141.

MM 4.3-2 also has multiple specific dust control measures that must be implemented, including that construction activities that occur on unpaved surfaces must be discontinued during windy conditions when winds exceed 25 miles per hour and those activities cause visible dust plumes that exceed the SJVAPCD's 20 percent opacity standard. See SREIR (October 2020), Vol. 1, at 4.3-89–90. These measures adequately address fugitive dust emissions and there is no need for further mitigation addressing fugitive dust when the SREIR finds that impacts will be less than significant with mitigation.

MMs 4.3-3 and MM 4.3-4 require compliance with standards applicable at the time the SREIR was written because it is not possible to foresee which future standards may apply to the Project and whether those future standards would be feasible for the Project to comply with. As explained above, a condition requiring compliance with regulations is common and reasonable under CEQA. Any future rules or regulations that directly apply to Project operations, including combustion standards, will have to be met by the Project as the Project cannot avoid complying with any legally applicable rules and regulations based on CEQA review.

The comment suggests multiple additional mitigation measures that should be implemented. The comment states that feasible mitigation exists for on- and off-road combustion emission, that new wells with combustion engines should be prohibited if the electric grid is available within 1,500 feet or less, that photovoltaic solar energy should be used for production equipment, and that it should be required to install remote well surveillance systems to reduce inspection travel. The SREIR offsets criteria pollutant emissions from Project activities to net zero via MM 4.3-8 and the OG-ERA. See SREIR (October 2020), Vol. 1, at 4.3-164–165. Thus, there is no need to include further mitigation measures in the SREIR.

During the scoping process for the 2015 FEIR, one suggested mitigation measure proposed requiring oil and gas projects to generate their own clean electricity during production using photovoltaic solar, direct line power, or both, to eliminate all needs for operation power diesel generators onsite, reducing emissions associated with such generators. As explained on page 4.3-121 of the 2015 Draft EIR, this suggested measure was not included in the Draft EIR because another mitigation

measure identified in the Draft EIR (i.e., MM 4.3-8) requires emissions of designated criteria air pollutants to be fully offset by funding emission reduction programs in the air basin, obviating the need for mandatory clean energy production. This option was eliminated because the SREIR has determined to fully mitigate relevant impacts by other equally or more effective means. Since the SREIR requires Project emissions to be fully offset under MM 4.3-8, it need not include additional mitigation requiring emitters to use clean electricity. This requirement may be infeasible for applicants due to the cost to connect every piece of equipment to a grid almost a 1/3 of a mile away. Neither this discussion nor the rejection of this suggestion to require clean energy was challenged in court.

The 2015 FEIR and the SREIR both considered two renewable energy alternatives, the Wind Energy Alternative and the Solar Energy Alternative. See SREIR (October 2020), Vol. 3, at 6-14–16; SREIR (October 2020), Vol. 1, at 6-17–20. These alternatives discuss the feasibility of requiring well permit applicants to power all or a portion of well operations with renewable energy sources. As to remote well surveillance, there are not remote surveillance technologies that would adequately service drill sites and well pads given the specific needs these sites have for inspection and the technologies that are used at these sites. The SREIR is not required to provide estimates of mitigated emissions to demonstrate the effectiveness of the various mitigation measures in the SREIR. MM 4.3-8 requires emissions of designated criteria pollutants to be fully offset and emissions will be reduced to net zero.

As to Valley Fever, MM 4.3-6 has been amended to incorporate some of the comment's suggestions, including requiring that an informational handout be provided to onsite construction personnel, training personnel on proper use of personal protective equipment, requiring applicants to pay a \$25 fee per individual well to be used by the Kern County Public Health Department for Valley Fever education and outreach. See SREIR (October 2020), Vol. 1, at 4.3-157. Please see Response to Comment 0006-9.

0009-150

The comment states that the SREIR's air quality analysis underestimates PM₁₀ and PM_{2.5} emissions due to fugitive dust.

The scope of the Court of Appeal's decision did not include air quality impacts beyond those related to PM_{2.5} emissions, MM 4.3-8, and the multi-well HRA. See GR-1 – Beyond the Scope of the SREIR. There was no challenge to other aspects of the air quality analysis or air quality calculations. CEQA does not require the SREIR to modify the other portions of the air quality impact analysis. New construction often occurs on previously disturbed land, not undeveloped land. Construction and fugitive dust is subject to SJVAPCD Regulation VIII, which the comment's tabular data do not consider. The data in the comment use disturbed soil factors, which do not require soil to be stabilized in any way, when construction surfaces would instead be required to be stabilized under a dust control plan, such as that required by MM 4.3-2. Fugitive dust emissions were calculated using predictive emission factors recommended by the EPA in AP42, Fifth Edition. See SREIR (October 2020), Vol. 1, at 4.3–88, 4.3-97, 4.3-116. Air quality calculations include fugitive dust generated by on-road sources, assuming that 90 percent of onsite travel occurred on unpaved oilfield roads. See SREIR (October 2020), Vol. 1, at 4.3-115, 4.3-117. The illustrations included in the comment are also speculative. MM 4.3-8 requires emissions of designated criteria pollutants to be fully offset, reducing emissions to net zero. Please see Response to Comment 0006-9.

0009-151

The comment states that the SREIR should have included an update to the Section 4.7, Greenhouse Gas Emissions and Global Climate Change, based on new information since certification of the 2015 FEIR. The comment also states that new information contained in the Fifth Assessment Reports published by the International Panel on Climate Change regarding the global warming potentials of greenhouse gas emissions requires a revision of the greenhouse gas emission estimates because the 2015 FEIR used the Fourth Assessment Report, and therefore the greenhouse gas emissions were underestimated in the 2015 FEIR.

Please see GR-1 – Beyond the Scope of the SREIR. Climate change is not one of the five topics required to be addressed in the SREIR. Please see Response to Comment 0009-98, explaining what constitutes new or significant information under CEQA. See also Responses to Comments 0009-102, 0009-109, and 0009-110. The 2015 FEIR contains an extensive discussion of climate change, including the trend of rising temperatures and increasing wildfires, heat waves, and floods, and thoroughly evaluates the impact of the Project as it relates to climate change, including consistency with plans, policies and regulations adopted for the purposes of reducing greenhouse gas emissions. See SREIR (October 2020), Vol. 3, Section 4.7, Greenhouse Gas Emissions and Global Climate Change, and SREIR (October 2020), Vol. 7, at 7-263–271.

The Fifth Assessment reports were published in 2013 and 2014 (IPCC n.d.). The Notice of Preparation for the 2015 FEIR was published in 2013. See SREIR (October 2020), Vol. 4, Appendix A. The greenhouse gas analysis in the 2015 FEIR uses a baseline

level of 43,028 wells that were operating in 2012, and an assumed number of 82,136 wells operating in 2035. The assumed number of new wells constructed spans from 3,966 in 2015 to 4,083 in 2035. The number of wells projected to be built in 2035 exceeds the number of wells that are projected to be authorized under the Project, and therefore these estimates are considered conservative. See SREIR (October 2020), Vol. 3, at 4.7-30 and SREIR (October 2020), Vol. 4, Appendix I.

The approach to environmental setting and the 2012 baseline is described in the 2015 FEIR, and explains that at the time environmental review commenced, 2012 was the most recent year for which complete data were available. See SREIR (October 2020), Vol. 3, at 2-21–23 and SREIR (October 2020), Vol. 5, at 7-128–136. The existence of the Fifth Assessment Reports (or subsequent reports), published during the preparation of the 2015 FEIR, does not constitute new significant information, because climate change and its indirect effects were known and addressed in the 2015 FEIR. See *Concerned Dublin Citizens v City of Dublin* (2013) 214 Cal.App.4th 1301 (the adoption of new guidelines for evaluation of greenhouse gas emissions was not significant new information requiring further CEQA review because information about the potential effects of those emissions was known and could have been addressed in connection with the certification of the original EIR). The greenhouse gas estimates in the 2015 FEIR are conservative and are not underestimated. The 2015 FEIR explains how future well and oil and gas activity projections were conservatively derived. The operational activities baseline and associated analysis was developed during a period of time when oil was in the range of 100 dollars per barrel. See SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-136–142 (2015 FEIR GR-8: Future Well Projections); SREIR (October 2020), Vol. 5, Section 7.2.4, Response to Comment 44-240. The SREIR (October 2020) discusses how oil and gas exploration and production activity has fluctuated considerably over time and explains the various factors that have influenced oil and gas production activity, including the price of oil. See SREIR (October 2020), Vol. 1, at 2-23, 24; see also SREIR (October 2020), Vol. 2, Appendix D, at 55, 56. In view of the recent circumstances affecting the price of oil and oil industry activities, including the effects of the COVID-19 pandemic, the greenhouse gas estimations in the 2015 FEIR are even more conservative than they were at the time the FEIR was certified. The comment does not raise new information regarding greenhouse gas emissions associated with the Project; the 2015 FEIR contains a thorough discussion of greenhouse gas emissions and climate change, and recent economic circumstances explained in the SREIR confirm the 2015 FEIR's conservative estimates of greenhouse gas emissions from the Project.

0009-152

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0009-153

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment summarizes the assumptions and modeling completed in the multi-well HRA. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

Please see Responses to Comments 0008-27 and 0008-58 through 0008-62.

0009-154

The comment references the emission calculations in the multi-well HRA.

Please see Response to Comment 0008-27. The SREIR addresses the assumptions, modeling, and emission calculations, including the issue of annualized emissions, in the multi-well HRA (SREIR (October 2020), Vol. 2, at Appendix B-1) and in the SREIR (October 2020), Vol. 1, at 4.3-153. The SREIR explains that the HRA annualized emissions for some Project activities, such as well rework (which assumed the need for a 500 horsepower Tier 2 diesel engine every other year for 9 hours and 30 minutes each time), as that is likely to occur during the day. Annualized emissions could potentially overstate calculated risk as nighttime meteorology is typically characterized by low wind speeds and stable atmospheric conditions, resulting in higher modeled concentrations. During the day, the atmosphere would generally be less stable, with higher wind speeds, and there could be more dispersion, resulting in lowered modeled concentrations. Annualized emissions do not underestimate exposure impacts, but instead represent a conservative assumption of Project health risks. The assumption of well workover being conducted every other year was also conservative and likely overstates risk. The comment appears to have correctly replicated the HRA analysis by coming up with an emission values in pounds per year and pounds per well per year that are almost exactly the same as those in the HRA.

0009-155

Thank you for your comment and participation in the public review of the Project and the environmental document. Please see Response to Comment 0008-27. Please see Response to Comment 0009-154 regarding annualized emissions.

0009-156

The comment references the 48 sources modeled in the multi-well HRA and assumptions related to temperature and exit velocity of emissions from these sources.

Please see Response to Comment 0008-27. The SREIR addresses the assumptions, modeling, and emission calculations, including the issues of temperature and exit velocity, in the multi-well HRA (SREIR (October 2020), Vol. 2, at Appendix B-1) and in the SREIR (October 2020), Vol. 1, at 4.3-153. The exhaust temperature (761.9 Kelvins[K]) and stack exhaust velocity (71.23 meters per second) were obtained from a local group of production engineers. These exhaust parameters for drill rigs were further confirmed in a 2014 study conducted by AECOM, which showed primary drilling rig exhaust temperatures of 783K and an exit velocity of 71.1 meters per second (AECOM 2014, p. 32).

0009-157

The comment references the use of AERMET and AERMINUTE to process wind data for modeling emissions in the multi-well HRA.

Please see Response to Comment 0008-27. The SREIR addresses the assumptions, modeling, and emission calculations, including wind data, in the multi-well HRA, provided in SREIR (October 2020), Vol. 2, at Appendix B-1, and in the SREIR (October 2020), Vol. 1, at 4.3-153. The SREIR explains that the California AERMOD, the air dispersion model used for HRAs, requires the use of local meteorological data. Those data are obtained, processed, and validated by each California air district for use in HRA preparation. The dataset known as AERMET was provided for the Project by the SJVAPCD for use in the Project HRAs. AERMET was required to be used for HRA analysis in 2015 and continues to be required now for use in all permit applications, dispersion, and HRAs prepared for the SJVAPCD. Rerunning the multi-well HRA in 2020 would not change this justified modeling choice. The use of AERMINUTE by the EPA does not change the modeling or inputs that the SJVAPCD requested in the HRA. As described in Appendix B-1 and the SREIR, the multi-well HRA also had multiple extremely conservative assumptions and still resulted in a cancer risk of 9.3 in 1 million, far below the threshold of significance of 20 in 1 million. The change to using AERMINUTE data is thus unlikely to affect the significance determination for the multi-well HRA.

0009-158

The comment summarizes the assumptions, modeling, and findings of the multi-well HRA.

This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers. The comment correctly identifies the exposure pathways. While the single-well HRAs utilized multi-pathway exposure (including adding ingestion at the request of the SJVAPCD, although this is not usually part of the normal HRA procedure), in the multi-well HRA inhalation is overwhelmingly the dominant pathway for exposure to and potential risk from diesel exhaust, and multi-pathway exposure was not necessary to consider. See SREIR (October 2020), Vol. 2, at Appendix B-1.

0009-159

The comment references the location of the 48 wells surrounding the sensitive receptor in the multi-well HRA. The comment also addresses the sources being treated as both point and area sources in the HRA.

Please see Response to Comment 0008-27. The SREIR addresses the assumptions, modeling, and emission calculations, including wind data, in the multi-well HRA (SREIR (October 2020), Vol. 2, at Appendix B-1) and in the SREIR (October 2020), Vol. 1, at 4.3-152–154. In the HRA, it was assumed that the sensitive receptor had a 300- by 300-meter (approximately 1,000- by-1,000-foot) fence around it. This may have resulted in slightly different measurements of distance from the wells to the sensitive receptor in various calculations. The third ring of 12 wells was actually closer to the sensitive receptor than stated in the text, and the final 12 rings are exactly as stated in the text. Slight differences in distances with respect to 24 of the 48 wells would not be expected to alter the results presented in the HRA. Appendix B-1 also explains that the SJVAPCD required that the drill rigs be modeled as point sources while the area source is the mud sump.

The comment scaled and modeled annual concentrations at peak receptor locations and came up a sum that is only 0.000177 micrograms per cubic meter different than the computed concentration in the multi-well HRA. This small deviation could be attributable to a rounding error or difference in decimal places of rounding during modeling.

Supplemental Chart of Health Studies Cited by Commenters

Subsequent to the preparation and certification of the 2015 FEIR, a number of studies have been published that have investigated whether associations exist between various health effects and proximity to unconventional oil and gas production and operation activities. Numerous studies presented in comments on the SREIR (August 2020) have been incorporated into Sections 4.3, Air Quality, 4.9, Hydrology and Water Quality, and 4.12, Noise of the SREIR (October 2020) to inform the public and decisionmakers of the potential health effects from oil and gas operations. The SREIR (October 2020) discloses the main findings of each study, and discusses any applicable limitations, data gaps or other factors that might affect a study's applicability or significance in analyzing health effects specific to the Project. The chart below supplements the summaries included in the SREIR (October 2020) with expanded discussions of each study's methods, findings, and conclusions. The studies will be considered by the County decisionmakers. However, as explained below for each study, none present new information that calls into question the adequacy of the 2015 FEIR and the SREIR's analyses of health impacts from oil and gas development activities, or setback mitigation measures adopted in the SREIR. Although none of the studies in the chart below suggest that new mitigation beyond the mitigation measures described in the SREIR (October 2020), the SREIR (October 2020) was updated at pages 6-34 through 6-45 to include a full analysis of the stand-alone 2,500-Foot Setback Alternative. See SREIR (October 2020), Vol. 1, at 6-34–45. This updated analysis finds that such alternative would not avoid or substantially lessen significant environmental impacts as compared to the Project, and could exacerbate air quality impacts by incentivizing more high-emission horizontal drilling activities. Therefore, the SREIR contains a thorough discussion of health risks associated with oil and gas activity.

Health Studies Submitted by Commenters	Summary of Findings	Responses to Study Cited by Commenters
Tran, K.V., Casey, J.A., Cushing, L.J., Morello-Frosch, R. (2020). Residential Proximity to Oil and Gas Development and Birth Outcomes in California: A Retrospective Cohort Study of 2006–2015 Births. <i>Environmental Health Perspectives</i> , 128(6).	This study entailed a retrospective cohort study of 2,918,089 births between January 2006 and December 2015 to mothers living within 10 kilometers (km) of at least one production well in the Sacramento Valley, San Joaquin Valley, South Central Coast, and South Coast Air Basins. The authors observed that prenatal exposure to active oil and gas production was associated with adverse birth outcomes, with the strongest associations occurring with exposure to high production volume in rural areas. Adjusted models showed exposure to active oil and gas development (OGD) was associated with adverse birth outcomes in rural areas; effect estimates in urban areas were close to null. In rural areas, increased production volume was associated with stronger adverse effect estimates. The study concludes that “proximity to higher production OGD in California was associated with adverse birth outcomes among mothers residing in rural areas. Future studies are needed to confirm our findings in other populations and improve exposure assessment measures.”	<p>The study is noted and will be considered by County decisionmakers. Please see Global Response (GR) 6 – Health Risk Assessments. The Revised Health Risk Assessment (HRA) contained at SRIER (October 2020), Vol. 2, Appendix B (Revised HRA), was performed pursuant to the Office of Environmental Health Hazard Assessment (OEHHA) 2015 Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA Guidelines). The OEHHA Guidelines include a description of the algorithms, exposure variates, cancer and noncancer health values, and the air modeling protocols needed to perform an HRA under the Air Toxics Hot Spots Information and Assessment Act of 1987 (Health and Safety Code § 44300 et seq.). The OEHHA Guidelines include a number of conservative assumptions, as well as Reference Exposure Levels (RELs) that are specifically tailored to reproductive and developmental target organ systems (e.g., benzene, ethylbenzene, toluene). See GR-6 and OEHHA Guidelines, Appendix L. Acute RELs are based on reproductive/developmental endpoints, such as teratogenicity or ferotoxicity, which are considered severe adverse effects. OEHHA Guidelines, at p. 6-3.</p> <p>In addition to the HRA’s conservative assumptions, the 2015 FEIR and the SREIR qualitatively disclosed known developmental health risks associated with exposure to criteria pollutants and toxic air contaminants (TACs). See, SREIR (October 2020), Vol. 3, at 4.3-12 (noting that exposure to ambient and indoor concentrations of carbon monoxide can lead to reduced birth weight and Sudden Infant Death Syndrome; 4.3-21 (noting that epidemiological studies have reported an association between vinyl chloride exposure in pregnant women and an increased incidence of birth defects); 4.3-21 (direct exposure to TACs has been shown to cause birth defects). The SREIR (August 2020) also discussed two recent studies (Gonzalez et al. (2020) and Bekkar et al. (2020)). See SREIR (October 2020), Vol. 1, at 4.3-156. The SREIR (August 2020) explained that Gonzalez et al. (2020) found limited evidence that exposure to oil and gas well sites in the first and second trimesters is associated with increased odds of spontaneous preterm birth at 20 to 31 weeks, but that the study was unable to evaluate which factors, environmental or social stressors confer risk. SREIR (October 2020), Vol. 1, at 4.3-156.</p> <p>The study’s principal findings that exposure to oil and gas wells is associated with increased risk of spontaneous preterm birth is subject to scientific method critiques. First, the authors based their analysis on total production volume from oil and gas wells, but did not “directly measure . . . environmental impacts via, for example, air or drinking water monitoring near active or inactive wells.” SREIR (October 2020), Vol. 1, at 4.3-29. The authors note that “there may be . . . individual factors that we could not measure in our study, such as maternal occupation, housing quality, indoor air quality, dependence on groundwater sources for drinking water.” See SREIR (October 2020), Vol. 1, at 4.3-29. For a more detailed discussion of the deficiencies of this study, please see the December 2020 Technical Memorandum by D. H. Garabrant, attached to Response to Comment 61.</p>

Health Studies Submitted by Commenters	Summary of Findings	Responses to Study Cited by Commenters
Gonzalez, D.J.X., Sherris, A.R., Yang, W., Stevenson, D.K., Padula, A.M., Baiocchi, M., Burkee, M., Cullen, M.R., Shaw, G.M. (2020). Oil and Gas Production and Spontaneous Preterm Birth in the San Joaquin Valley, CA. <i>Environmental Epidemiology</i> , 4(4).	The objective of this study was to determine whether exposure to well sites was associated with increased odds of spontaneous preterm birth (delivery at <37 weeks). The authors conducted a case-control study using data on 27,913 preterm birth cases and 197,461 term birth controls. All births were without maternal comorbidities and were located in the San Joaquin Valley, California, between 1998 and 2011. The authors also obtained data for 83,559 wells in preproduction or production during the study period, and assessed exposure using inverse distance-squared weighting and, for each birth and trimester, assigned an exposure tertile. The study observed increased odds ratios for preterm birth with high exposure to wells in the first and second trimesters for births delivered at ≤ 31 weeks. In a secondary analysis, the authors observed that exposure to wells in preproduction is associated with higher concentrations of particulate matter. The authors concluded that their study presents evidence that exposure to oil and gas well sites is associated with increased risk of spontaneous preterm birth.	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA was performed pursuant to the OEHHA Guidelines, which include a description of the algorithms, recommended exposure variates, cancer and noncancer health values, and the air modeling protocols needed to perform a HRA under the Air Toxics Hot Spots Information and Assessment Act of 1987 (Health and Safety Code § 44300 et seq.). The OEHHA Guidelines include a number of conservative assumptions, as well as RELs that are specifically tailored to the reproductive and developmental target organ systems. See GR-6 and OEHHA Guidelines, Appendix L. Acute RELs are based on reproductive/developmental endpoints, such as teratogenicity or ferotoxicity, which are considered severe adverse effects. OEHHA Guidelines, at p. 6-3.</p> <p>In addition to the HRA’s conservative assumptions, the 2015 FEIR and the SREIR qualitatively disclosed known developmental health risks associated with exposure to criteria pollutants and TACs. See SREIR (October 2020), Vol. 3, at 4.3-12 (noting that exposure to ambient and indoor concentrations of carbon monoxide can lead to reduced birth weight and Sudden Infant Death Syndrome); 4.3-21 (noting that epidemiological studies have reported an association between vinyl chloride exposure in pregnant women and an increased incidence of birth defects); and 4.3-21 (direct exposure to TACs has been shown to cause birth defects). The SREIR (August 2020) also discussed two recent studies (Gonzalez et al. (2020) and Bekkar et al. (2020)). SREIR (October 2020), Vol. 1, at 4.3-156. The SREIR (August 2020) explained that Gonzalez et al. (2020) found limited evidence that exposure to oil and gas well sites in the first and second trimesters is associated with increased odds of spontaneous preterm birth at 20 to 31 weeks, but that the study was unable to evaluate which factors, environmental or social stressors confer risk. SREIR (October 2020), Vol. 1, at 4.3-156.</p> <p>The study’s principal findings that exposure to oil and gas wells is associated with increased risk of spontaneous preterm birth is subject to scientific method critiques. See the December 2020 Technical Memorandum by D. H. Garabrant, attached to Response to Comment 61.. For these reasons, this study presents no new information that would call into questions the 2015 FEIR and the SREIR’s analyses of health risks, or the adequacy of the HRAs and related setback distances under MM 4.3-5.</p>
Shamasunder, B., Collier-Oxandale, A., Blickley, J., Sadd, J., Chan, M., Navarro, S., Hannigan, M., Wong, N.J. (2018). Community-Based Health and Exposure Study around Urban Oil Developments in South Los Angeles. <i>International Journal of Environmental Research and Public Health</i> , 15(1), 138.	In this study, bilingual surveys of 205 randomly sampled residences were collected within two 1,500 feet buffer areas in Los Angeles surrounding oil development sites (West Adams and University Park). Physician diagnosed asthma rates were reported to be higher within both buffers as compared to Service Planning Area 6 (SPA6)—the Los Angeles County Department of Public Health (DPH) designated area in which South Los Angeles is located—and to Los Angeles County residents overall. Asthma prevalence in West Adams but not University Park was significantly higher than in Los Angeles County. Respondents with diagnosed asthma reported rates of emergency room visits in the previous 12 months similar to SPA6. The authors acknowledge that “Buffers/setbacks are well recognized as protective by the regulatory authorities such as local air districts and should be incorporated into neighborhood oil development sites to protect community health,” but did not recommend specific setback distances.	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Draft SREIR (October 2020) contains extensive discussions and disclosures regarding how exposure to pollutants and TACs may cause or exacerbate respiratory effects, including asthma. See SREIR (October 2020), Vol. 1, at 4.3-11 (“[o]zone also accelerates aging and exacerbates preexisting asthma ...”); 4.3-13 (“[c]urrent scientific evidence links short-term nitrogen dioxide (NO₂) exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects including airway inflammation in healthy people and increased respiratory symptoms in people with asthma.”); 4.3-15 (“[n]umerous scientific studies have linked particle pollution exposure to a variety of problems, including ... [a]ggravated asthma”); 4.3-16 (“short-term exposures to [sulfur dioxide], ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects including bronchoconstriction and increased asthma symptoms”); 4.3-19 (“[e]ffects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms ...”); 4.3-19 (“[e]xposure to low concentrations of [hydrogen sulfide] may irritate the eyes, nose, and throat. It may also cause difficulty in breathing for some asthmatics.”); and 4.3-27 (in discussion of diesel particulate matter, “[e]xposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks.”)</p> <p>In addition to these qualitative disclosures, the Revised HRA was performed pursuant to the OEHHA Guidelines, which include a description of the algorithms, recommended exposure variates, cancer</p>

Health Studies Submitted by Commenters	Summary of Findings	Responses to Study Cited by Commenters
		<p>and noncancer health values, and the air modeling protocols needed to perform an HRA. The OEHHA Guidelines have established RELs for acute and chronic noncancer exposure for a number of substances. The acute and chronic RELs are the concentration at which no adverse noncancer health effects are anticipated even in sensitive members of the general population. OEHHA has explained that “[t]he most sensitive health effect is chosen to develop the REL if the chemical affects multiple organ systems.” OEHHA Guidelines, at p. 2-3. Exceeding an acute or chronic REL does not necessarily indicate that an adverse health impact will occur. OEHHA Guidelines, at p. 4-32. The REL is not the threshold where population health effects would first be seen, however, levels of exposure above the REL have an increasing, but undefined, probability of resulting in an adverse health impact, particularly in sensitive individuals (e.g., depending on the toxicant, the very young, the elderly, pregnant women, and those with acute or chronic illnesses). OEHHA Guidelines, at p. 6-2. The target organ systems for the acute and chronic RELs associated with the hazardous air pollutants (HAPs) analyzed in the Revised HRA are shown in the tables included in GR-6. These tables show that a number of the TACs assessed in the Revised HRA have OEHHA-established acute and/or chronic RELs for the respiratory organ system (e.g., acetaldehyde, acrolein, DPM, formaldehyde, hydrogen sulfide, phenol, toluene). The Revised HRA showed that none of the acute or chronic noncancer hazards for either an oil processing facility or a gas processing facility exceeded the regulatory threshold of 1.0.</p> <p>The Shamasunder et al. (2018) has been critiqued by at least one other California local agency in its assessment of health effects from oil and gas activities. The Office of Petroleum and Natural Gas Administration and Safety (OPNGAS) Report (discussed below) assesses whether setbacks of 1,500 feet from sensitive receptors for future oil and gas activities should be required and based its recommendation, in part, on an analysis of scientific research published to date that investigated health effects associated with oil and natural gas activities. Of Shamasunder et. al (2018), the OPNGAS Report notes:</p> <p>One peer reviewed study (Shamasunder et al. 2018) has been published to date in the City of Los Angeles related to respiratory health outcomes of asthma and oil and gas activities. It was based on self-reported household health surveys in the Adams and University Park neighborhoods. While this study compared localized asthma rates to state and county-level surveys, these comparisons do not take into account competing sources of air pollution and other variables associated with asthma prevalence. The study was very weak as there was no source apportionment, consequently the source of [] methane is difficult to ascertain and it relies on self-reported data, which can be difficult to interpret or replicate. (City of Los Angeles 2019, pp. 142–143).</p> <p>This is consistent with the SREIR’s (October 2020) summary of the study. SREIR (October 2020), Vol. 1, at 4.3-35–36.</p>
Garcia-Gonzales, D., Shonkoff, S., Hays, J., Jerrett, M. (2019). Hazardous Air Pollutants Associated with Upstream Oil and Natural Gas Development: An Examination of the Current Peer-reviewed Literature. <i>Annual Review of Public Health</i> .	In this review, the authors analyzed recent global peer-reviewed articles that investigated HAP pollution near oil and natural gas (ONG) operations to (a) identify HAPs associated with upstream ONG development, (b) identify their specific sources in upstream processes, and (c) examine the potential for adverse health outcomes from HAPs emitted during these phases of hydrocarbon development. The authors did not find evidence to support the common assumption that the discrete hydraulic fracturing phase itself is associated with the highest risk of exposure to HAPS, but did find that the production phase—with its lengthy operation timeframe, episodic peak emission events, and largest number of HAPs sourced to the various equipment and operations—has the potential to emit the highest concentrations and the most varied	<p>The report is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA analyzed and quantified exposure risk for 31 HAPs including, but not limited to, benzene, ethylbenzene, formaldehyde, toluene and xylenes. The Revised HRA quantified HAP emissions from various sources associated with the production phase of oil and natural gas activities (which the study noted has the highest potential to emit the highest concentration and the most varied mixtures of HAPs). Specifically, emissions from the following natural gas combustion equipment were analyzed:</p> <ul style="list-style-type: none">– One new 100 million British thermal units per hour (MMBtu/hr) flare;– One – 8 MMBtu/hr process heater;

Health Studies Submitted by Commenters	Summary of Findings	Responses to Study Cited by Commenters
	mixture of HAPs over the longest time period, especially in regions rich in oil, wet gas, and condensate.	<ul style="list-style-type: none">– One – 10 MMBtu/hr boiler;– One – 85 MMBtu/hr steam generator; and– One – 33 megawatt cogeneration plant. <p>SREIR (October 2020), Vol. 1, at 4.3-146. The highest acute risk associated with drilling one well was 0.0098 as compared to the regulatory threshold hazard index of 1.0. The highest calculated acute risk associated with all operations at a theoretical oil and gas production facility was 0.23 as compared to the regulatory threshold hazard index of 1.0. In all cases, acute and chronic noncancer risk were below the regulatory threshold hazard index of 1.0. SREIR (October 2020), Vol. 1, at 4.3-150–151. In addition to the HRA and its conservative assumptions, the 2015 FEIR and the SREIR contained numerous disclosures regarding the health effects related to HAPs exposure. SREIR (October 2020), Vol. 1, at 4.3-21–28.</p>
Lim, G.Q. & John, K. (2020). Impact of Energy Production in the Barnett Shale Gas Region on the Measured Ambient Hydrocarbon Concentrations in Denton, Texas. <i>Atmospheric Pollution Research</i> , 11:409–418.	This study entailed a long-term trend study of 84 total non-methane organic carbon (TNMOC) species measured at the Denton Airport South monitoring station, located at the edge of the Barnett Shale play in Texas. The results showed that a year-to-year increase in the mean TNMOC concentrations mirrored the energy production volume changes from natural gas wells and liquid condensate facilities within 2-km from the ambient air quality monitoring station. Concentrations of alkanes increased significantly, especially the natural gas species of ethane, propane, n-butane, and isobutane. Overall, the results showed that shale gas activities in Denton, Texas, had a strong influence on the measured TNMOC concentrations in the ambient atmosphere.	The study is noted and will be considered by County decisionmakers. Please see GR-6. This report measured long-term concentrations of non-methane organic carbon species in the Barnett Shale play in Texas, but did not analyze exposure levels of TNMOCs at residences within that area. The Revised HRA analyzed and quantified exposure risk for 31 HAPs including, but not limited to, benzene, ethylbenzene, formaldehyde, toluene, and xylenes. The Revised HRA quantified HAP emissions in the context of drilling emissions, oil processing emissions, and natural gas processing emissions. In all cases, acute and chronic noncancer risks were below the regulatory threshold hazard index of 1.0. SREIR (October 2020), Vol. 1, at 4.3-150–151. In addition to the HRA and its conservative assumptions, the 2015 FEIR and the SREIR contained numerous disclosures regarding the health effects related to HAPs exposure. SREIR (October 2020), Vol. 1, at 4.3-21–28. This report presents no new information that would call into question the 2015 FEIR and the SREIR's analyses of health effects from HAP exposure, or the adequacy of the HRAs and related setback distances under MM 4.3-5.
McKenzie, L.M., Blair, B.D., Hughes, J., Allshouse, W.B., Blake, N., Helmig, D., Milmoie, P., Halliday, H., Blake, D.R., Adgate, J.L. (2018a). Ambient Non-Methane-Methane Hydrocarbon Levels Along Colorado's Northern Front Range: Acute and Chronic Health Risks. <i>Environmental Science & Technology</i> .	This study characterized prenatal through adult health risks for acute (1 h) and chronic (30 year) residential inhalation exposure scenarios to non-methane hydrocarbons, including benzene, toluene, ethylbenzene, and xylenes. The authors used ambient air sample results to estimate and compare risks for four residential scenarios, and observed that air pollutant concentrations increased with proximity to an oil and gas facility, as did health risks. Acute hazard indices for neurological, hematological, and developmental health effects indicated that populations living within 152 meters of an oil and gas facility could experience these health effects from inhalation exposures to benzene and alkanes. The study also observed a cancer risk estimate of 8.3 per 10,000 for populations living within 152 meters of an oil and gas facility exceeded the United States Environmental Protection Agency's 1 in 10,000 upper threshold.	The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA quantified emissions and analyzed exposure risks associated with 31 HAPs, including those chemicals identified in this study: benzene, ethylbenzene, toluene, and xylenes. The Revised HRA determined that acute and chronic noncancer risks associated with either an oil processing facility or a gas processing facility fell below the regulatory threshold hazard index of 1.0.
Haley, M., McCawley, M., Epstein, A.C., Arrington, B., Bjerke, E.F. (2016). Adequacy of Current State Setbacks for Directional High-Volume Hydraulic Fracturing in the Marcellus, Barnett, and Niobrara Shale Plays. <i>Environmental Health Perspectives</i> , 124(9).	The authors of this study attempted to determine whether legal setback distances between well-pad sites and the public are adequate in three shale plays in Colorado, Texas and Pennsylvania. Specifically, the study reviewed geography, current statutes and regulations, evacuations, thermal modeling, air pollution studies, and vapor cloud modeling within the Marcellus, Barnett, and Niobrara Shale Plays. The results indicated that presently utilized setbacks may leave the public vulnerable to explosions, radiant heat, toxic gas clouds, and air pollution from hydraulic fracturing activities. Specific to air pollution, air measurements and vapor dispersion modeling, the same populations are susceptible to benzene and hydrogen sulfide exposure above health-based risk levels. The authors recommended that Texas, Pennsylvania, and Colorado should consider adopting more generous setback distances, particularly	The study is noted and will be considered by County decisionmakers. Please see GR-6 and Response to Comment 0009-126. Regarding the report's findings related to air quality, the SREIR adequately disclosed known health risks due to exposure of airborne benzene and hydrogen sulfide. See SREIR (October 2020), Vol. 3, at 4.3-17 (discussing hydrogen sulfide and related health risks) and SREIR (October 2020), Vol. 3, at 4.3-21–22 (discussing benzene and related health risks). In addition to these qualitative disclosures of risk, the Revised HRA analyzed and quantified cancer and acute/chronic noncancer risks for both benzene and hydrogen sulfide from numerous sources associated with drilling and processing activities. In all such cases, the Revised HRA found the health risk of benzene and hydrogen sulfide exposure fell beneath the regulatory threshold hazard index of 1.0.

Health Studies Submitted by Commenters	Summary of Findings	Responses to Study Cited by Commenters
	<p>in reference to vulnerable populations; however, distance is not an absolute measure of protection.</p>	<p>Regarding the report’s finding related to explosions and radiant health, as noted in Response to Comment 0009-126, the 2015 FEIR, Section 4.8, Hazards and Hazardous Materials, addressed risks posed by fires, explosions and other accidents (including release of vapors from transportation accidents involving hazardous materials). SREIR (October 2020), Vol. 3, at 4.8-16–19. The 2015 FEIR explained that recent studies have indicated that well failure or blowout rates in the Project Area have been significantly reduced over time by improved well construction technologies. Well blowout rates in oilfields undergoing thermally enhanced recovery (via steam injection) in California Oil and Gas District 4 from 1991 to 2005 were 1 per 1,000 well construction operations, 1 per 10,000 active wells per year, and 1 per 100,000 shut-in/idle and plugged/abandoned wells per year (Jordan and Benson 2008). The FEIR and SREIR require applicants to comply with regulatory requirements and industry best practices to reduce the risk of blowouts and other accidents. See SRIER (October 2020), Vol. 1, at 4.18-54 (MM 4.8-13 requires applicants to “comply with the Geologic Energy Management Division requirements for assuring safe drilling and drill casing practices, well design, construction and well management requirements, blowout requirements, and all other provisions of 14 California Code of Regulations 1744 and other applicable Geologic Energy Management Division regulations”; applicants must also “reduce the incidence of well control loss by following the practices described in Recommended Practice for Well Control Operations (American Petroleum Institute (2012)).” Regarding risks of radiant heat from natural gas fires noted in this study, MM 4.8-20 requires applicants to comply with the Kern County Fire Code, maintain firefighting apparatus and supplies, have available equipment to extinguish incipient fires and or construction of a fire break, and train personnel pursuant to a Fire Safety Plan.</p> <p>The report does not recommend any specific setback distances specific to oil and natural gas related accidents in California, nor does it reconcile how the regulatory programs in Texas, Colorado, and Pennsylvania compare to the legal and regulatory regimes in California, or the mitigation measures described above that are specific to air quality and hazards. The 2015 CCST Report explains that California requirements for oil and gas operators can not only reduce occupation health hazards at oil and gas facilities, but also at nearby communities. See 2015 CCST Report, Vol. II, at 418–419 (“[e]mployers in the oil and gas industry are required to comply with existing California occupational safety and health regulations, and follow best practices to significantly reduce and/or eliminate illness and injury risk to their employees (California Occupational Safety and Health Act of 1973 and Title 8 of the California Code of Regulations). In following these standards and best practices in protecting workers from chemical exposures while they are involved in well stimulation operations, employers in this industry may also reduce the likelihood of chemical exposure to the surrounding community.”)</p>
<p>City of Los Angeles, Department of Public Works, Office of Petroleum and Natural Gas Administration and Safety (2019). Oil and Gas Health Report (OPNGAS Report).</p>	<p>This report assesses whether setbacks of 1,500 feet from sensitive receptors for future oil and gas activities should be required. It summarizes prior HRAs; environmental impact reports (including the 2015 FEIR); other reports on health risks from oil and gas activities; setbacks in other jurisdictions; and policy and legal statements. The report notes that “[t]here is a lack of empirical evidence correlating oil and gas operations within the City of Los Angeles to widespread negative health impacts” and that the review of scientific literature on the health impacts of oil and gas operations “was limited and inconclusive.” A few of the principal conclusions of the report include:</p> <ul style="list-style-type: none">– Chemicals of concern pose a risk to nearby residents if environmental and exposure pathways are present (e.g., inhalation). Although some chemicals are clearly of greater concern than others (e.g., highly toxic chemicals used in large quantities that are also air pollutants), chemicals of concern are not explicitly ranked. Additional information regarding environmental profiles	<p>This report is noted and will be considered by County decisionmakers. Although the OPNGAS Report recommended that “[a]gencies with jurisdiction should consider the implementation of a larger minimum surface setback between oil and gas development and sensitive receptors to reduce the risk of exposure to chemicals of concern,” the report does not recommend specific setback distances (City of Los Angeles 2019, p. 60). The OPNGAS Report found that “[w]hile epidemiological studies have found limited associations between adverse health effects and living near oil and gas operations, . . . the epidemiological studies are not able to conclude whether or not living near oil and gas activities is associated with long-term health impacts” (City of Los Angeles 2019, p. 48). The OPNGAS Report goes on to state that health impact assessments (i.e., HRAs) “help to fill data gaps” in scientific literature (City of Los Angeles 2019, p.48). The OPNGAS Report and its findings are therefore not inconsistent with the approach taken in SREIR. The SREIR (October 2020) discloses and summarizes health studies that have investigated health risks and proximity to oil and gas activities. In addition to these qualitative disclosures, the SREIR (October 2020) relies on</p>

Health Studies Submitted by Commenters	Summary of Findings	Responses to Study Cited by Commenters
	<p>and acute and chronic toxicity is needed before a more thorough assessment of risk can be completed.</p> <ul style="list-style-type: none">– The close proximity of oil and gas events occurring outside the city to communities that lie within the city suggest that negative impacts associated with emissions of TACs and other chemicals from events (particularly in Inglewood and Long Beach) could be transported via air pathways into the city. Analysis of chemical usage across oil fields, event types, and city boundaries revealed significant overlap in chemicals used, regardless of location or oil field, suggesting potential air pollution and inhalation hazards from events outside the city would be similar to those within the city.– The lack of strict quality control over operator submitted data and the disjointed nature of the South Coast Air Quality Management District (SCAQMD) dataset hinders analysis of the dataset. Major data gaps regarding chemical identities, physical and chemical properties, toxicity, and environmental fate and transport prevent further characterization of chemical hazards and risk. Assessing chemicals for toxicity, biodegradability, and hazard is a vital first step; however, more data are needed before a risk analysis can be completed. (– Out of 1,688 events where chemical use was reported in the SCAQMD, 597 events (106 in the city) were located within 1,500 feet of sensitive receptors such as residences, preschools, K-12 schools, hospitals, and other health care facilities. These events have the potential to negatively impact surrounding populations and should be prioritized for engineering controls and monitoring. The city currently only has a 200 foot setback requirement for upstream oil and gas development operations which has multiple conditions that can circumnavigate this requirement. Agencies with jurisdiction should consider the implementation of a larger minimum surface setback between oil and gas development and sensitive receptors to reduce the risk of exposure to chemicals of concern.	<p>HRAs performed for the 2015 FEIR as a well-accepted and accurate means of quantifying cancer and acute/chronic noncancer hazards of Project activities.</p>
<p>Los Angeles County Department of Public Health (2018). Public Health and Safety Risks of Oil and Gas Facilities in Los Angeles County.</p>	<p>In this report, the Los Angeles County DPH synthesized information from multiple sources concerning public health effects of oil and gas development, including epidemiological literature, environmental and health impact assessments, neighborhood health investigations, and consultations with various jurisdictions regarding oil and gas ordinances. The authors noted that epidemiological studies have found limited associations between adverse health effects and living near oil and gas operations, but such studies “are not able to conclude whether or not living near oil and gas activities is associated with long-term health effects.” The report observed that, based on the available scientific evidence, other local and state agencies have established setback distances ranging from 210 to 1,500 feet in order to protect public health and safety amidst oil and gas operations; these setbacks were based primarily on the potential for safety concerns and air quality impacts. In addition to setback distances, particularly in cases of existing oil and gas operations within the minimum setback, alternative measures (e.g., engineering controls, monitoring, closure) combined with monitoring are necessary to protect the health and safety of the surrounding communities. The Los Angeles County DPH concluded that there is sufficient evidence that the County should expand setback distances beyond 300 feet and apply these requirements to siting of new wells and to development of sensitive</p>	<p>This report is noted and will be considered by County decisionmakers. Like the OPNGAS Report, this report noted that “epidemiological literature on public health and safety impacts of oil and gas activities has been increasing in recent years; however, data gaps and uncertainties remain.” The report also notes that “epidemiological studies are not able to conclude whether or not living near oil and gas activities is associated with long-term health impacts.” Similar to the OPNGAS Report discussed above, this report noted that environmental and health impact assessments are important to “fill data gaps in the literature.” Therefore, the findings of this report are not inconsistent with the approach taken in SREIR. The SREIR (October 2020) discloses and summarizes health studies that have investigated health risks and proximity to oil and gas activities. In addition to these qualitative disclosures, the SREIR (October 2020) relies on HRAs performed for the 2015 FEIR as a well-accepted and accurate means of quantifying cancer and acute/chronic noncancer hazards of Project activities.</p>

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	land uses near existing land uses, but did not recommend any particular setback distance beyond 300 feet.	
Shonkoff, S.B.C., Domen, J.K., Hill, L.A.L. (2019). Human Health and Oil and Gas Development: An Assessment of Chemical Usage in Oil and Gas Activities in the Los Angeles Basin and the City of Los Angeles.	This report analyzed chemical use in upstream oil and gas operations in Los Angeles and the SCAQMD and presented findings, conclusions, and research and policy recommendations. Studies published since 2015 that were analyzed in this report fit one of two broad categories: (1) studies of human health hazards, risks and impacts in the context of air pollution from upstream oil and gas development; and (2) human health hazards, risks, and impacts as a function of distance from and density of upstream oil and gas development. The study noted a number of findings. First, that there is a dearth of peer-reviewed studies on oil and gas development that are specific to the State of California and the City of Los Angeles, yet there are results and conclusions drawn from the weight of the peer-reviewed literature <u>outside of California</u> (but “are relevant to the California context.”) Second, the majority of peer-reviewed studies that assess human health in the context of oil and gas development as a function of distance and density have noted increased hazards, risks and health impacts as distance decreases and density increases. The report noted that studies to date conducted in regions with migrated hydrocarbon reservoirs have found associations with increased health risks associated with oil and gas development ranging from approximately 0.1 miles (500 feet) to one mile (5,290 feet).	This report is noted and will be considered by County decisionmakers. Please see the December 2020 Technical Memorandum by D. H. Garabrant, attached to Response to Comment 61. The SREIR has included and summarized a recent body of epidemiological studies submitted in comments on the SREIR (August 2020), including a number that were reviewed and synthesized in the DPH's report. The SREIR's (October 2020) summarization and disclosure of epidemiological studies is consistent with the approach taken by DPH. However, the SREIR's approach of relying on exposure assessments performed in the HRAs is also an appropriate, well-accepted approach to establishing health risk based setback distances that are tailored to health risks from Project activities.
Compilations and Reviews of the 2015 CCST Report		
Nicole J. Wong. (2017). Existing Scientific Literature on Setback Distances from Oil and Gas Development Sites.	<p>This report reviewed 14 studies and publications that investigated health and quality of life impacts and exposures of unconventional natural gas development (UNGD) proximate to residences. Of the 14 studies and publications, six considered the distance of an active well to place of residence, while the remaining four considered the concentration of wells proximate to residences. The report acknowledges that (at the date of its publication), no peer-reviewed studies had investigated the relationship between the proximity of oil and gas development and health outcomes in California, nor studied this issue in the U.S. urban context.</p> <p>The report concludes that scientific literature has recognized that a setback distance between oil and gas operations and locations where people live, work, play, and learn is necessary to protect human health and safety. Setbacks are especially crucial to protect vulnerable populations, such as children, elderly, and the chronically ill or disabled. The author also concludes that “[t]he scientific literature and published reports make a strong case for a far more protective health and safety setback for the City of Los Angeles than currently exists in other jurisdictions, and creates a substantial basis for the 2,500-foot setback proposed by community advocates.”</p>	<p>This report is noted and will be considered by County decisionmakers. Please see GR-6. This report analyzed prior research investigating health risks from unconventional oil and natural gas activities, primarily in terms of (i) air quality and toxic exposure, (ii) noise; and (iii) explosion and blowout risks.</p> <p>Concerning (i) above, the Revised HRA analyzed and quantified cancer and acute and chronic noncancer risks for the chemicals expressly mentioned by the author. For example, the author notes that “the greatest distance to oil and gas activity investigated was 2 km (6,561 feet) where exposure to hydrogen sulfide combined with VOCs were detected.” Elsewhere, the author notes that “McKenzie, et al. (2012) found elevated risk of health effects from natural gas development for residents living less than half a mile from wells, and primarily considered the subchronic noncancer hazard index, which was primarily driven up by exposure to trimethylbenzenes, xylenes, and aliphatic hydrocarbons, and chronic hazard index measurements, which were driven up by benzene exposure.” The Revised HRA quantified emissions of these and other chemicals, and determined that acute and chronic noncancer risks associated with construction and operation emissions fell beneath the regulatory threshold of 1.0. In addition to the Revised HRA, the SREIR qualitatively disclosed the health impacts from exposure to criteria pollutant and toxic air contaminants that were observed noted by the author of this report (e.g., throat irritation, sinus problems, nasal irritation, eye burning, severe headaches). See SREIR (October 2020), Vol. 3, at 4.3-10–31.</p> <p>Concerning (ii) above, the study references Boyle et. al (2017), which is discussed in greater detail on page 19 of this chart (below).</p> <p>For (iii) above, please see Response to Comment 0009-126. The 2015 FEIR discussed the safety and health hazards associated with oil and gas activities, including explosions and fires. See SREIR (October 2020), Vol. 3, at 4.8-16. The 2015 FEIR also noted that transportation accidents involving</p>

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		vehicles transporting hazardous materials can result in fires, explosions, clouds of vapors and gases, or spills to land and water. SREIR (October 2020), Vol. 3, at 4.8-72.
Lewis, C. et al. (2018). Setback Distances for Unconventional Oil and Gas Development: Delphi Study Results.	This Delphi study sought to elicit expert consensus on appropriate setback distances for unconventional oil and gas development from human activity. Three rounds were used to identify and seek consensus on recommended setback distances. The 18 panelists were health care providers, public health practitioners, environmental advocates, and researchers/scientists. Consensus was defined as agreement of greater than or equal to 70 percent of panelists. The panel reached consensus that setbacks of < 1/4 mile should not be recommended and additional setbacks for vulnerable populations should be recommended. The panel did not reach consensus on recommendations for setbacks between 1/4 and 2 miles. The results suggest that if setbacks are used the distances should be greater than 1/4 of a mile from human activity, and that additional setbacks should be used for settings where vulnerable groups are found, including schools, daycare centers, and hospitals. The lack of consensus on setback distances between 1/4 and 2 miles reflects the limited health and exposure studies and the need to better define exposures and track health.	This report is noted and will be considered by County decisionmakers. The Delphi study is subject to a lack of generalization of results and potential biases on behalf of the panelists. For example, the study notes that a “total of 57 experts were invited to participate in this Delphi; 18 agreed to be panelists and returned the completed Round 1 questionnaire and consent form.” This represents a participation rate of 31.5 percent of invited potential panelists. The study does not account for the natural thought that those more willing to engage in a setback Delphi study may be more prone to recommend (and advocate for) larger setback distances from oil and gas activities beyond what is protective of human health and the environment. In addition, the panelists of this Delphi study included not only researchers, but public health professionals and environmental advocates—and the study does not provide a breakdown of how many panelists belonged to each professional category. These deficiencies call into question whether the study’s results were biased. Lastly, the Delphi study asked panelists only generic questions regarding setback requirements (e.g., “[w]hat do you believe are appropriate setback distances for hydraulic fracturing and related activities from places where people live, including single homes, multiple family dwellings, etc.?”). The researchers did not provide panelists with information on different regulatory regimes, oil and natural gas practices or exposure data to qualify their responses.
Webb, E., Moon, J., Dyrszka, L., Rodriguez, B., Cox, C., Patisaul, H., Bushkin, S., London, E. (2017). Neurodevelopmental and Neurological Effects of Chemicals Associated with Unconventional Oil and Natural Gas Operations and Their Potential Effects on Infants and Children. <i>Reviews on Environmental Health</i> , 33(1).	The authors of this review focused on scientific literature relevant to the potential neurodevelopmental health effects of unconventional oil and natural gas emissions on children and newborns. The authors reviewed three types of research: (1) unconventional oil and gas air and water emissions and concentrations; (2) documented neurological health risks and symptoms from exposure to our selected pollutant list; and (3) long-term neurological health outcomes from early life exposure to unconventional oil and gas–associated pollutants in other contexts as documented in the literature. The authors did not perform a formal quality assessment of the literature. The authors concluded that prior studies have shown that exposure to heavy metals (arsenic and manganese), particulate matter, benzene, toluene, ethylbenzene, and xylene, endocrine-disrupting chemicals, and polycyclic aromatic hydrocarbons (PAHs) is linked to adverse neurological and developmental health effects, particularly in infants and children.	<p>This review is noted and will be considered by County decisionmakers. Please see GR-6. This study did not entail exposure assessments independent of existing research, but rather, reviewed and synthesized existing research that has assessed the extent to which unconventional oil and natural gas practices may be associated with neurological health risks for newborns and children.</p> <p>The Revised HRA was performed pursuant to the OEHHA Guidelines. The OEHHA Guidelines include “explicit consideration of infants and children in assessing risks from air toxics, necessitated revisions of the methods for both noncancer and cancer risk assessment, and of the exposure variates.” OEHHA Guidelines, at p. 1. This was in response to the Children’s Environmental Health Protection Act of 1999, which required OEHHA to evaluate all ambient air quality standards to determine whether these standards adequately protect human health, particularly that of infants and children, to identify toxic air contaminants that disproportionately impact children, and to ensure that health assessments of toxic chemicals explicitly incorporate considerations of infants and children. See Health & Safety Code § 39606; OEHHA Guidelines at J-10. Table 2 of the study notes PAHs; volatile organic compounds (VOCs) benzene, toluene, ethylbenzene, xylenes; and PM_{2.5} — each of which was quantified for acute and chronic health risks.</p> <p>In addition to the Revised HRA and conservative assumptions incorporated into it, the 2015 FEIR and the SREIR contained qualitative disclosures regarding the extent to which chemicals of concern may be linked to neurological symptoms. See SREIR (October 2020), Vol. 3, at 4.3-23 (acute effects from benzene exposure include neurological symptoms, including drowsiness, dizziness, headaches, and unconsciousness); 4.3-24 (at very high levels, butadiene vapors cause neurological effects, such as blurred vision, fatigue, headache, and vertigo); 4.3-25 (acute inhalation exposure to very high concentrations of chromium (VI) include gastrointestinal and neurological effects); and 4.3-26 (chronic exposure to perchloroethylene (tetrachloroethylene) amongst workers have shown signs of kidney dysfunction and neurological disorders). The SRIER (October 2020) also disclosed that studies have investigated whether there is a link between oil and gas drilling and various health effects, such as neurodevelopmental effects. SREIR (October 2020), Vol. 1, at 4.3-28.</p> <p>As for the compounds identified in Table 2 of the study that were detected at certain levels in water (i.e., arsenic, manganese, benzene, toluene, ethylbenzene, and xylenes), all of those compounds</p>

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		are regulated under California's Safe Drinking Water Act program. The State Water Resources Control Board has established either primary or secondary maximum contaminant levels for each of these compounds. Under the SREIR, operators must comply with California's Safe Drinking Water Act program and implementing regulations pursuant to MM 4.9-1 (applicants must "comply with all applicable federal, state, regional and local agency water quality protection laws and regulations.")
Deziel, N.C., Brokovich, E., Grotto, I., Clark, C.J., Barnett-Itzhaki, Z., Broday, D., Agay-Shay, K. (2020). Unconventional Oil and Gas Development and Health Outcomes: A Scoping Review of the Epidemiological Research. <i>Environmental Research</i> .	The authors of this report performed a literature search of MEDLINE and SCOPUS for epidemiological studies of exposure to unconventional oil and gas development and verified human health outcomes published through August 15, 2019. For each study, the authors extracted data on the study design, study population, health outcomes, exposure assessment approach, statistical methodology, and potential confounders. The authors identified 806 published articles, most of which were published during the last three years, and after screening, 40 peer-reviewed articles were selected for full text evaluation, and of these, 29 articles met the researchers' inclusion criteria. The review found that 25 of the 29 studies reported at least one statistically significant association between the unconventional oil and gas exposure metric and an adverse health outcome, the most commonly studied endpoint was adverse birth outcomes. The authors of this report concluded that their "review highlights the heterogeneity among studies with respect to study design, outcome of interest, and exposure assessment methodology. Though replication in other populations is important, current research points to a growing body of evidence of health problems in communities living near UOG [unconventional oil and gas] sites."	<p>This review is noted and will be considered by County decisionmakers. This study did not entail exposure assessments independent of existing research, but rather, an analysis and categorization of existing research that met the authors work searches and criteria for inclusion. This method suffers from several deficiencies or limitations. First, the authors performed word searches on MEDLINE and SCOPUS search engines and then screened studies' abstracts to determine whether they met the authors' inclusion criteria. It is unknown whether different word searches or inclusion criteria would have rendered different findings. The authors acknowledge that they reviewed the abstract of studies to determine whether or not they met the authors' inclusion criteria. It is not clear whether reviewing abstracts is a sufficient basis to determine whether a study should or should not be included in the literature review. In other words, the researchers of this study may have excluded studies that were pertinent to their objective, but that may not have been apparent from the abstracts reviewed by the researchers.</p> <p>To the extent the review observed that adverse birth outcomes were the most commonly observed association in the studies reviewed, the 2015 FEIR and the SREIR (October 2020) disclosed that exposure to certain criteria pollutants and toxic air contaminants may cause developmental impacts and/or result in adverse birth defects. The Revised HRA was performed pursuant to OEHHA Guidelines, which establish RELs that are specifically tailored to the reproductive and developmental target organ systems, including a number of chemicals analyzed in the Revised HRA's assessment of acute and chronic exposure risk. See OEHHA Guidelines, Appendix L. Acute RELs are based on reproductive/developmental endpoints, such as teratogenicity or ferotoxicity, which are considered severe adverse effects. OEHHA Guidelines, at p. 6-3. In addition to the HRA's conservative assumptions, the 2015 FEIR and the SREIR qualitatively disclosed known developmental health risks associated with exposure to criteria pollutants and TACs. See SREIR (October 2020), Vol. 3, at 4.3-12 (noting that exposure to ambient and indoor concentrations of carbon monoxide can lead to reduced birth weight and Sudden Infant Death Syndrome; 4.3-21 (noting that epidemiological studies have reported an association between vinyl chloride exposure in pregnant women and an increased incidence of birth defects); and 4.3-21 (direct exposure to TACs has been shown to cause birth defects). The SREIR (August 2020) also discussed two recent studies (Gonzalez et al. (2020) and Bekkar et al. (2020)). SREIR (October 2020), Vol. 1, at 4.3-156. The SREIR (August 2020) explained that Gonzalez et al. (2020) found limited evidence that exposure to oil and gas well sites in the first and second trimesters is associated with increased odds of spontaneous preterm birth at 20 to 31 weeks, but that the study was unable to evaluate which factors, environmental or social stressors, confer risk. SREIR (October 2020), Vol. 1, at 4.3-156.</p>
Gorski, I., & Schwartz, B.S. (May 20, 2020). Environmental Health Concerns From Unconventional Natural Gas Development. <i>Oxford Research Encyclopedia, Global Public Health</i> .	The authors conducted a review of studies that summarize the environmental and health-related impacts of UNGD, such as horizontal drilling and hydraulic fracturing. The review reported that studies have observed associations between UNGD and pregnancy and birth outcomes; migraine headache, chronic rhinosinusitis, severe fatigue, and other symptoms; asthma exacerbations; and psychologic- and stress-related concerns.	The report is noted and will be considered by County decisionmakers. The report is consistent with the 2015 FEIR and the SREIR's analyses and disclosures related to the health symptoms observed by the authors of this review. As noted in responses to other studies in this chart, the Revised HRA assessed acute and chronic health risks for a number of sources used in oil and natural gas production and processing. The HRA was performed pursuant to the OEHHA Guidelines, which established RELs for target organ systems that are associated with the health effects noted by the author. In addition to the Revised HRA and its conservative assumption, the 2015 FEIR and the SREIR disclosed that the health effects noted by the author can occur from exposure to certain criteria pollutants and TACs (e.g., migraines, fatigue, asthma exacerbation, etc.).

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		It should also be noted that a majority of studies reviewed by the authors have been incorporated into the SRIER (October 2020) and responded to in this chart. These include, but are not limited to, Casey, J. A., et al. (2016); Currie, J., et al (2017); Hays, J., et al. 2017); Jemielita, T., et al. (2015); Paulik et al. (2016); and Rasmussen, S. G., et al. (2016). This review will be considered by County decisionmakers and has been added to the SREIR (October 2020), but does not present new information that would call into questions the 2015 FEIR and the SREIR’s analyses of health effects from oil and gas activities, or the HRAs and related setback mitigation measures.
Concerned Health Professionals of New York, & Physicians for Social Responsibility. (2019). Compendium of Scientific, Medical, and Media Findings Demonstrating Risks and Harms of Fracking (Unconventional Gas and Oil Extraction) (6th ed.).	This compendium collected and compiled findings from articles from peer-reviewed medical or scientific journals; investigative reports by journalists; and reports from, or commissioned by, government agencies. The authors concluded that the findings to date from scientific, medical, and journalistic investigations combine to demonstrate that hydraulic fracturing poses threats to air, water, human health, public safety, community cohesion, long-term economic vitality, biodiversity, seismic stability, and climate stability. The compendium also concluded that “across a wide range of parameters, from air and water pollution to radioactivity to social disruption to greenhouse gas emissions, the data continue to reveal a plethora of recurring problems and harms that cannot be sufficiently averted through regulatory frameworks.” The Compendium did not examine risks posed by other forms of unconventional oil and gas extraction, such as cyclic steaming (which uses pressurized, superheated water to release oil), microwave extraction (which points microwave beams into shale formations to liquefy oil), and artificial lift (which uses gases, chemicals, or pumps to extract natural gas).	The compendium is noted and will be considered by County decisionmakers. The compendium does not recommend any specific setback distances from unconventional oil natural gas development activities. To the extent the compendium raises environmental and non-environmental impacts, the 2015 FEIR and the SREIR analyzed the impacts from Project activities to the extent required under CEQA. See SREIR (October 2020), Vol. 3, Section 4.3, Air Quality; 4.4, Biological Resources; 4.7, Greenhouse Gas Emissions and Climate Change; 4.8, Hazards and Hazardous Materials; 4.9, Hydrology; and 4.12, Noise.
Hays, J. & Shonkoff, S.B.C. (2016). Toward an Understanding of the Environmental and Public Health Impacts of Unconventional Natural Gas Development: A Categorical Assessment of the Peer-Reviewed Scientific Literature, 2009-2015. <i>PLoS ONE</i> , 1(4): e0154164.	The authors performed this categorical assessment of scientific literature from 2009–2015 as it relates to the potential impacts of UNGD on public health, water quality, and air quality. Of the 685 papers reviewed, the authors assessed that 84 percent of public health studies contain findings that indicate public health hazards, elevated risks, or adverse health outcomes; 69 percent of water quality studies contain findings that indicate potential, positive association, or actual incidence of water contamination; and 87 percent of air quality studies contain findings that indicate elevated air pollutant emissions and/or atmospheric concentrations. The review revealed that the weight of findings in scientific literature indicates hazards and elevated risks to human health as well as possible adverse health outcomes associated with UNGD.	The report is noted and will be considered by County decisionmakers. The report analyzed and synthesized scientific reports assessing health risks and natural gas development activities over a six year period, which predates the 2015 FEIR. Unlike other studies included in this chart, this report did not attempt (nor was designed to) analyze any particular health effects, nor does it recommend any setback distances. The rise in scientific reports that show associations between public health, air quality and water quality-related associations and UNGD is noted and will be considered by County decisionmakers. This is consistent with the 2015 FEIR and the the SREIR’s disclosures and analysis related to health effects, air quality and water quality impacts under CEQA.
Other Adverse Birth Outcome Studies		
Hill, E. L. (2018). Shale Gas Development and Infant Health: Evidence from Pennsylvania. <i>Journal of Health Economics</i> , 61, 134-150.	Using detailed location data on maternal addresses and the GIS coordinates of gas wells, this study examined singleton births to mothers residing close to a shale gas well from 2003 to 2010 in Pennsylvania. The author observed that the introduction of drilling increased low birth weight and decreased term birth weight on average among mothers living within 2.5 km of a well compared to mothers living within 2.5 km of a permitted well. Adverse effects were also detected using measures such as small for gestational age and Apgar scores, while no effects on gestation periods were found. The results suggest an association between shale gas development and adverse effects on prenatal infants.	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA was performed pursuant to OEHHA Guidelines, which include a number of conservative assumptions and RELs that are specifically tailored to “reproductive” and “development” target organ systems. See OEHHA Guidelines, Appendix L. Acute RELs are based on reproductive/developmental endpoints, such as teratogenicity or ferotoxicity, which are considered severe adverse effects. OEHHA Guidelines, at p. 6-3.</p> <p>In addition to the HRA’s conservative assumptions, the 2015 FEIR and the SREIR qualitatively disclosed known developmental health risks associated with exposure to criteria pollutants and TACs. See SREIR (October 2020), Vol. 3, at 4.3-12 (noting that exposure to ambient and indoor concentrations of carbon monoxide can lead to reduced birth weight and Sudden Infant Death Syndrome); 4.3-21 (noting that epidemiological studies have reported an association between vinyl</p>

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		chloride exposure in pregnant women and an increased incidence of birth defects); and 4.3-21 (direct exposure to TACs has been shown to cause birth defects). The SREIR (August 2020) also discussed two recent studies (Gonzalez et al. (2020) and Bekkar et al. (2020)). SREIR (October 2020), Vol. 1, at 4.3-156. The SREIR (August 2020) explained that Gonzalez et al. (2020) found limited evidence that exposure to oil and gas well sites in the first and second trimesters is associated with increased odds of spontaneous preterm birth at 20 to 31 weeks, but that the study was unable to evaluate which factors, environmental or social stressors, confer risk. SREIR (October 2020), Vol. 1, at 4.3-156.
McKenzie, L.M., Allshouse, W., Daniels, S. (2019). Congenital Heart Defects and Intensity of Oil and Gas Well Site Activities in Early Pregnancy. <i>Environment International</i> , 132: 104949.	This study evaluated the relationship between maternal proximity to oil and gas well activities and births with congenital heart defects. The study employed a nested case-control study of 3,324 infants born in Colorado between 2005 and 2011. 187 singleton births with an aortic artery and valve anomalies, 179 with pulmonary artery and valve anomalies, 132 with conotruncal anomalies, and 38 with tricuspid valve defects were frequency matched 1:5 to controls on sex, maternal smoking, and race and ethnicity, yielding 2,860 controls. The study estimated (but did not measure) monthly intensities of oil and gas activities at material residences from three months prior to conceptions through the second gestational month. Overall, the study observed that congenital heart defects were 1.4 and 1.7 times more likely than controls in the medium and high intensity groups, respectively, compared to the low intensity group. Pulmonary artery and valve defects were 1.7 and 2.5 times more likely in the medium and high intensity groups for mothers with an address found in the second gestational month. In rural areas, aortic artery and valve, conotruncal, or tricuspid valve defects were 1.8 and 2.6; 2.1 and 4.0; and 3.4 and 4.6 times more likely than controls in the medium and high intensity groups. The authors concluded that the study provides further evidence of a positive association between maternal proximity to oil and gas well site activities and several types of congenital heart defects, particularly in rural areas.	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA was performed pursuant to OEHHA Guidelines, which include a number of conservative assumptions and RELs that are specifically tailored to “reproductive” and “development” target organ systems. See OEHHA Guidelines, Appendix L. Acute RELs are based on reproductive/developmental endpoints, such as teratogenicity or ferotoxicity, which are considered severe adverse effects. OEHHA’s Guidelines, at p. 6-3. For noncancer risk, none of the acute impacts or chronic noncancer hazards for either an oil processing facility or a gas processing facility exceeded the regulatory threshold of 1.0</p> <p>In addition to the HRA’s conservative assumptions, the 2015 FEIR and the SREIR qualitatively disclosed known developmental health risks associated with exposure to criteria pollutants and TACs. See SREIR (October 2020), Vol. 3, 4.3-12 (noting that exposure to ambient and indoor concentrations of carbon monoxide can lead to reduced birth weight and Sudden Infant Death Syndrome); 4.3-21 (noting that epidemiological studies have reported an association between vinyl chloride exposure in pregnant women and an increased incidence of birth defects); and 4.3-21 (direct exposure to TACs has been shown to cause birth defects). The SREIR (August 2020) also discussed two recent studies (Gonzalez et al. (2020) and Bekkar et al. (2020)). SREIR (October 2020), Vol. 1, at 4.3-156. The SREIR (August 2020) explained that Gonzalez et al. (2020) found limited evidence that exposure to oil and gas well sites in the first and second trimesters is associated with increased odds of spontaneous preterm birth at 20 to 31 weeks, but that the study was unable to evaluate which factors, environmental or social stressors confer risk. SREIR (October 2020), Vol. 1, at 4.3-156.</p>
Caron-Beaudoin, E., Valter, N., Chevrier, J., Ayotte, P., Frohlich, K., Verner, M.-A. (2018). Gestational Exposure to Volatile Organic Compounds (VOCs) in Northeastern British Columbia, Canada: A Pilot Study. <i>Environment International</i> , 110.	This study evaluated gestational exposure to benzene and toluene in the Peace River Valley, Northeastern British Columbia (Canada). Urine samples were collected over five consecutive days from 29 pregnant women. Metabolites of benzene (s-phenylmercapturic acid (S-PMA) and trans, trans-muconic acid (t,t-MA)) and toluene (s-benzylmercapturic acid (S-BMA)) were measured in pooled urine samples from each participant. Levels of benzene metabolites were compared to those from the general Canadian population and from a biomonitoring study of residents from an area of active gas exploitation in Pavillion, Wyoming. The results indicated that urinary t,t-MA levels, but not S-PMA levels, measured were suggestive of a higher benzene exposure in participating pregnant women from the Peace River Valley than in the general Canadian population. Given the small sample size and limitations of t,t-MA measurements (e.g., non-specificity), more extensive monitoring was recommended.	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA was performed pursuant to OEHHA Guidelines, which include a number of conservative assumptions and RELs that are specifically tailored to reproductive and developmental target organ systems. See OEHHA Guidelines, Appendix L. Acute RELs are based on reproductive/developmental endpoints, such as teratogenicity or ferotoxicity, which are considered severe adverse effects. OEHHA Guidelines, at p. 6-3. For noncancer risk, none of the acute impacts or chronic noncancer hazards for either an oil processing facility or a gas processing facility exceeded the regulatory threshold of 1.0.</p> <p>In addition to the Revised HRA’s conservative assumptions, the 2015 FEIR and the SREIR qualitatively disclosed known developmental health risks associated with exposure to criteria pollutants and TACs. See SREIR (October 2020), Vol. 3, 4.3-12 (noting that exposure to ambient and indoor concentrations of carbon monoxide can lead to reduced birth weight and Sudden Infant Death Syndrome); 4.3-21 (noting that epidemiological studies have reported an association between vinyl chloride exposure in pregnant women and an increased incidence of birth defects); and 4.3-21 (direct exposure to TACs has been shown to cause birth defects). The SREIR (August 2020) also discussed two recent studies (Gonzalez et al. (2020) and Bekkar et al. (2020)). SREIR (October 2020), Vol. 1, at 4.3-156. The SREIR (August 2020) explained that Gonzalez et al. (2020) found limited evidence that exposure to oil and gas well sites in the first and second trimesters is</p>

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		<p>associated with increased odds of spontaneous preterm birth at 20 to 31 weeks, but that the study was unable to evaluate which factors, environmental or social stressors confer risk. SREIR (October 2020), Vol. 1, at 4.3-156.</p> <p>To the extent the study noted that water contamination may be a potential pathway for benzene exposure in Northeastern British Colombia, Canada, benzene is regulated under California’s Safe Drinking Water Act program and State Water Resource Control Board-established maximum contaminant levels. Under the SREIR, operators must comply with California’s Safe Drinking Water Act program and implementing regulations pursuant to MM 4.9-1 (applicants must “comply with all applicable federal, state, regional and local agency water quality protection laws and regulations.”)</p>
Currie, J., Greenstone, M., Meckel, K. (2017). Hydraulic Fracturing and Infant Health: New Evidence from Pennsylvania. <i>Science Advances</i> , 3(12).	This study found evidence of negative health effects of in utero exposure to fracking sites within 3 km of a mother’s residence, with the largest health impacts seen for in utero exposure within 1 km of fracking sites. Negative health impacts include a greater incidence of low birth–weight babies and significant declines in average birth weight and in several other measures of infant health.	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA was performed pursuant to OEHHA Guidelines, which include a number of conservative assumptions and RELs that are specifically tailored to reproductive and developmental target organ systems. See OEHHA Guidelines, Appendix L. Acute RELs are based on reproductive/developmental endpoints, such as teratogenicity or ferotoxicity, which are considered severe adverse effects. OEHHA Guidelines, at p. 6-3. For noncancer risk, none of the acute impacts or chronic noncancer hazards for either an oil processing facility or a gas processing facility exceeded the regulatory threshold of 1.0.</p> <p>In addition to the HRA’s conservative assumptions, the 2015 FEIR and the SREIR qualitatively disclosed known developmental health risks associated with exposure to criteria pollutants and TACs. See SREIR (October 2020), Vol. 3, 4.3-12 (noting that exposure to ambient and indoor concentrations of carbon monoxide can lead to reduced birth weight and Sudden Infant Death Syndrome); 4.3-21 (noting that epidemiological studies have reported an association between vinyl chloride exposure in pregnant women and an increased incidence of birth defects); 4.3-21 (direct exposure to TACs has been shown to cause birth defects). The SREIR (August 2020) also discussed two recent studies (Gonzalez et al. (2020) and Bekkar et al. (2020)). SREIR (October 2020), Vol. 1, at 4.3-156. The SREIR (August 2020) explained that Gonzalez et al. (2020) found limited evidence that exposure to oil and gas well sites in the first and second trimesters is associated with increased odds of spontaneous preterm birth at 20 to 31 weeks, but that the study was unable to evaluate which factors, environmental or social stressors confer risk. SREIR (October 2020), Vol. 1, at 4.3-156.</p>
Whitworth, K.W., Marshall, A.K., Symanski, E. (2017). Maternal Residential Proximity to Unconventional Gas Development and Perinatal Outcomes Among a Diverse Urban Population in Texas. <i>PLoS One</i> , 12(7).	The results were suggestive of an association between maternal residential proximity to UNGD activity and preterm birth and fetal death. Quantifying chemical and nonchemical stressors among residents near UGD should be prioritized.	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA was performed pursuant to OEHHA Guidelines, which include a number of conservative assumptions and RELs that are specifically tailored to reproductive and developmental target organ systems. See OEHHA Guidelines, Appendix L. Acute RELs are based on reproductive/developmental endpoints, such as teratogenicity or ferotoxicity, which are considered severe adverse effects. OEHHA Guidelines, at p. 6-3. For noncancer risk, none of the acute or chronic noncancer hazards for either an oil processing facility or a gas processing facility exceeded the regulatory threshold of 1.0.</p> <p>In addition to the HRA’s conservative assumptions, the 2015 FEIR and the SREIR qualitatively disclosed known developmental health risks associated with exposure to criteria pollutants and TACs. See SREIR (October 2020), Vol. 3, at 4.3-12 (noting that exposure to ambient and indoor concentrations of carbon monoxide can lead to reduced birth weight and Sudden Infant Death Syndrome); 4.3-21 (noting that epidemiological studies have reported an association between vinyl chloride exposure in pregnant women and an increased incidence of birth defects); and 4.3-21 (direct exposure to TACs has been shown to cause birth defects). The SREIR (August 2020) also</p>

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		discussed two recent studies (Gonzalez et al. (2020) and Bekkar et al. (2020)). SREIR (October 2020), Vol. 1, at 4.3-156. The SREIR (August 2020) explained that Gonzalez et al. (2020) found limited evidence that exposure to oil and gas well sites in the first and second trimesters is associated with increased odds of spontaneous preterm birth at 20 to 31 weeks, but that the study was unable to evaluate which factors, environmental or social stressors, confer risk. SREIR (October 2020), Vol. 1, at 4.3-156.
Whitworth, K.W., Marshall, A.K., Symanski, E. (2018). Drilling and Production Activity Related to Unconventional Gas Development and Severity of Preterm Birth. <i>Environmental Health Perspectives</i> .	This study found associations between UGD and preterm birth may be strongest for extremely preterm births. Given the range of potential chemical and nonchemical exposures associated with UGD, it is imperative to conduct comprehensive studies to characterize specific exposures experienced by individuals affected by UGD.	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA was performed pursuant to OEHHA Guidelines, which include a number of conservative assumptions and RELs that are specifically tailored to reproductive and developmental target organ systems. See OEHHA Guidelines, Appendix L. Acute RELs are based on reproductive/developmental endpoints, such as teratogenicity or ferotoxicity, which are considered severe adverse effects. OEHHA Guidelines, at p. 6-3. For noncancer risk, none of the acute impacts or chronic noncancer hazards for either an oil processing facility or a gas processing facility exceeded the regulatory threshold of 1.0.</p> <p>In addition to the HRA's conservative assumptions, the 2015 FEIR and the SREIR qualitatively disclosed known developmental health risks associated with exposure to criteria pollutants and TACs. See SREIR (October 2020), Vol. 3, at 4.3-12 (noting that exposure to ambient and indoor concentrations of carbon monoxide can lead to reduced birth weight and Sudden Infant Death Syndrome); 4.3-21 (noting that epidemiological studies have reported an association between vinyl chloride exposure in pregnant women and an increased incidence of birth defects); and 4.3-21 (direct exposure to TACs has been shown to cause birth defects). The SREIR (August 2020) also discussed two recent studies (Gonzalez et al. (2020) and Bekkar et al. (2020)). SREIR (October 2020), Vol. 1, at 4.3-156. The SREIR (August 2020) explained that Gonzalez et al. (2020) found limited evidence that exposure to oil and gas well sites in the first and second trimesters is associated with increased odds of spontaneous preterm birth at 20 to 31 weeks, but that the study was unable to evaluate which factors, environmental or social stressors, confer risk. SREIR (October 2020), Vol. 1, at 4.3-156.</p>
Casey, J.A., Savitz, D.A., Rasmussen, S.G., Ogburn, E.L., Pollak, J., Mercer, D.G., Schwartz, B.S. (2016). Unconventional Natural Gas Development and Birth Outcomes in Pennsylvania, USA. <i>Epidemiology</i> , 27(2).	Prenatal residential exposure to UNGD activity was associated with two pregnancy outcomes, adding to evidence that UNGD may impact health.	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA was performed pursuant to OEHHA Guidelines, which include a number of conservative assumptions and RELs that are specifically tailored to reproductive and developmental target organ systems. See OEHHA Guidelines, Appendix L. Acute RELs are based on reproductive/developmental endpoints, such as teratogenicity or ferotoxicity, which are considered severe adverse effects. OEHHA Guidelines, at p. 6-3. For noncancer risk, none of the acute impacts or chronic noncancer hazards for either an oil processing facility or a gas processing facility exceeded the regulatory threshold of 1.0.</p> <p>In addition to the HRA's conservative assumptions, the 2015 FEIR and the SREIR qualitatively disclosed known developmental health risks associated with exposure to criteria pollutants and TACs. See SREIR (October 2020), Vol. 3, at 4.3-12 (noting that exposure to ambient and indoor concentrations of carbon monoxide can lead to reduced birth weight and Sudden Infant Death Syndrome); 4.3-21 (noting that epidemiological studies have reported an association between vinyl chloride exposure in pregnant women and an increased incidence of birth defects); and 4.3-21 (direct exposure to TACs has been shown to cause birth defects). The SREIR (August 2020) also discussed two recent studies (Gonzalez et al. (2020) and Bekkar et al. (2020)). SREIR (October 2020), Vol. 1, at 4.3-156. The SREIR (August 2020) explained that Gonzalez et al. (2020) found limited evidence that exposure to oil and gas well sites in the first and second trimesters is associated with increased odds of spontaneous preterm birth at 20 to 31 weeks, but that the study was unable to</p>

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		evaluate which factors, environmental or social stressors confer risk. SREIR (October 2020), Vol. 1, at 4.3-156.
Respiratory Health Effects		
Peng, L., Meyerhoefer, C., Chou, S.Y. (2018). The Health Implications of Unconventional Natural Gas Development in Pennsylvania. <i>Health Economics</i> , 27(6): 956-983.	This study investigated the health effects from UNGD of Marcellus shale in Pennsylvania between 2001 and 2013 by merging well permit data from the Pennsylvania Department of Environmental Protection with a database of all inpatient hospital admissions. The authors focused on the effect of Marcellus well development on the county-level hospitalization rates for acute myocardial infarction, chronic obstructive pulmonary disease, asthma, pneumonia, and upper respiratory infections. The study observed that UNGD was associated with a significant increase in the hospitalization rate for pneumonia among the elderly, which is consistent with higher levels of air pollution. Although the study found associations between natural gas development and extraction and acute myocardial infarction, chronic obstructive pulmonary disease, asthma, and upper respiratory infections, these effects were noted to be “sensitive to the empirical method as well as the functional specification of the models.” The study did not find any impact on asthma, pneumonia, or upper respiratory infections among children aged 5 to 19, and noted that the effects found among adults may reflect acute aggravation of preexisting conditions. The study did not provide an exposure assessment to the study population, but noted that “[b]ecause our effects are predicated on increased exposure to air pollutants, it would be attractive to show a link between elevated levels of ambient air pollutant concentration and unconventional well development activities. Unfortunately, due to the poor overlap between air quality monitoring sites and well locations, we are not able to establish this relationship directly.”	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA was performed pursuant to OEHHHA Guidelines, which include a number of conservative assumptions and RELs that are specifically tailored to respiratory target organ systems. See OEHHHA Guidelines, Appendix L. For noncancer risk, none of the acute impacts or chronic noncancer hazards for either an oil processing facility or a gas processing facility exceeded the regulatory threshold of 1.0.</p> <p>In addition to the Revised HRA and its conservative assumptions discussed above, the 2015 FEIR and the SREIR disclosed known health effects of criteria pollutants and HAPs on respiratory diseases—many of which are included in Table 1 of Peng, et al. (2018). See SREIR (October 2020), Vol. 3, at 4.3-10 (noting that high levels of ozone may make people more susceptible to respiratory illnesses, including bronchitis and pneumonia, exacerbate preexisting asthma and bronchitis and, in cases with high concentrations, lead to the development of asthma in active children); 4.3-12 (noting that direct inhalation of oxides of nitrogen can also cause a wide range of health effects. Oxides of nitrogen can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza); 4.3-14 (noting that studies have linked particular pollution (PM_{2.5}) to nonfatal heart attacks, aggravated asthma, decreased lung function, and increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing); 4.3-14 (noting that current scientific evidence links short-term exposures to sulfur dioxide (SO₂) with an array of adverse respiratory effects including increased asthma symptoms, high concentrations of SO2 can result in temporary breathing impairment for asthmatic children and adults who are active outdoors); 4.3-15 (noting that SO2 concentrations have been linked to self-reported respiratory conditions, and that that the elderly and those with chronic respiratory conditions may also be affected at lower concentrations than the general population); 4.3-17 (noting that sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardiopulmonary disease); 4.3-17 (noting that chronic inhalation exposure to chromium (VI) in humans results in effects on the respiratory tract, with perforations and ulcerations of the septum, bronchitis, decreased pulmonary function, pneumonia, asthma); and 4.3-26 (noting that exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks).</p>
Willis, M.D., Jusko, T.A., Halterman, J.S., Hill, E.L. (2018). Unconventional Natural Gas Development and Pediatric Asthma Hospitalizations in Pennsylvania. <i>Environmental Research</i> , 166: 402-408	In this study, the authors compared pediatric asthma hospitalizations among zip codes with and without exposure to UNGD between 2003 and 2014 in Pennsylvania using a difference-in-differences panel analysis. The study observed elevated odds of hospitalizations in the top tertile of pediatric patients exposed to unconventional drilling compared with their unexposed peers. The authors concluded that the study's results further demonstrate that increasing specific air emissions from UNGD sites are associated with increased risks of pediatric asthma hospitalizations (e.g., 2,2,4-trimethylpentane, formaldehyde, x-hexane).	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA was performed pursuant to OEHHHA Guidelines, which include a number of conservative assumptions and RELs that are specifically tailored to respiratory target organ systems. See OEHHHA Guidelines, Appendix L. The OEHHHA Guidelines were revised in 2015 for particular consideration of infants and children in assessing risks from air toxics. For noncancer risk, none of the acute impacts or chronic noncancer hazards for either an oil processing facility or a gas processing facility exceeded the regulatory threshold of 1.0.</p> <p>In addition to the HRA and its conservative assumptions discussed above, the 2015 FEIR and the SREIR qualitatively disclosed the extent by which criteria pollutants and HAPs may cause or exacerbate asthma. See SREIR (October 2020), Vol. 3, at 4.3-10 (exposure to high levels of ozone may exacerbate preexisting asthma and, in cases with high concentrations, lead to the development of asthma in active children); 4.3-14 (studies have linked particular pollution (PM_{2.5}) to aggravated asthma); 4.3-14 (current scientific evidence links short-term exposures to SO2 with an array of adverse respiratory effects including increased asthma symptoms, high concentrations</p>

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		of SO2 can result in temporary breathing impairment for asthmatic children and adults who are active outdoors); 4.3-17 (sulfate exposure at levels above the standard may lead to aggravation of asthmatic symptoms); 4.3-17 (chronic inhalation exposure to chromium (VI) in humans results in effects on the respiratory tract, including asthma); and 4.3-26 (exposure to diesel exhaust also causes inflammation in the lungs, which may increase the frequency or intensity of asthma attacks).
Rasmussen S.G., Ogburn E.L., McCormack M, Casey J.A., Bandeen-Roche K., Mercer D.G., Schwartz B.S. (2016). Association between Unconventional Natural Gas Development in the Marcellus Shale and Asthma Exacerbations. <i>JAMA Internal Medicine</i> , 176(9): 13341343	This study used a “nested case-control study” to compare patients with asthma with and without exacerbations from 2005 through 2012 treated at the Geisinger Clinic. The study estimated unconventional natural gas activity metrics for four phases (pad preparation, drilling, stimulation [hydraulic fracturing, or “fracking”], and production). It found that those in the highest quartile of residential UNGD activity had significantly higher odds of three types of asthma exacerbations (new oral corticosteroid medication orders, emergency department visits, and hospitalizations) than those in the lowest quartile.	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA was performed pursuant to OEHHA Guidelines, which include a number of conservative assumptions and RELs that are specifically tailored to respiratory target organ systems. See OEHHA Guidelines, Appendix L. The OEHHA Guidelines were revised in 2015 for particular consideration of infants and children in assessing risks from air toxics. For noncancer risk, none of the acute impacts or chronic noncancer hazards for either an oil processing facility or a gas processing facility exceeded the regulatory threshold of 1.0.</p> <p>In addition to the HRA and its conservative assumptions discussed above, the 2015 FEIR and the SREIR qualitatively disclosed the extent by which criteria pollutants and HAPs may cause or exacerbate asthma. See SREIR (October 2020), Vol. 3, at 4.3-10 (exposure to high levels of ozone may exacerbate preexisting asthma and, in cases with high concentrations, lead to the development of asthma in active children); 4.3-14 (studies have linked particular pollution (PM_{2.5}) to aggravated asthma); 4.3-14 (current scientific evidence links short-term exposures to SO2 with an array of adverse respiratory effects including increased asthma symptoms, high concentrations of SO2 can result in temporary breathing impairment for asthmatic children and adults who are active outdoors); 4.3-17 (sulfate exposure at levels above the standard may lead to aggravation of asthmatic symptoms); 4.3-17 (chronic inhalation exposure to chromium (VI) in humans results in effects on the respiratory tract, including asthma); and 4.3-26 (exposure to diesel exhaust also causes inflammation in the lungs, which may increase the frequency or intensity of asthma attacks).</p>
Cardiovascular		
McKenzie, L.M., Crooks, J., Peel, J.L., Blair, B.D., Brindley, S., Allshouse, W.B., Malin, S., Adgate, J.L. (2018b). Relationships between Indicators of Cardiovascular Disease and Intensity of Oil and Natural Gas Activity in Northeastern Colorado. Environmental Research.	This study was a cross-sectional study between October 2015 and May 2016 of 97 adults living in northeastern Colorado. The authors collected from each participant measurements of augmentation index, systolic and diastolic blood pressure, plasma concentrations of interleukin, and tumor necrosis factor alpha. The study observed positive associations between the intensity of oil and gas activity within 16 km of a participant’s home and some indicators of cardiovascular disease. Augmentation index and systolic and diastolic blood pressures were highest in the subset of participants experiencing the greatest levels of oil and gas activity. The study was not, however, able to elucidate possible mechanisms or environmental stressors, such as air pollution and noise.	The study is noted and will be considered by County decisionmakers. Please see GR-6. In addition to the Revised HRA, the 2015 FEIR contained multiple qualitative disclosures on the extent to which criteria pollutants and HAPs may lead to, or exacerbate, cardiovascular diseases. See SREIR (October 2020), Vol. 3, at 4.3-10 (cardiovascular diseases are aggravated by exposure to high ozone levels); 4.3-11 (carbon monoxide can effect human health by entering the bloodstream, reducing the oxygen carrying capacity of blood, thereby reducing oxygen delivery to organs and tissues); 4.3-13 (epidemiological studies have also shown associations between NO ₂ concentrations and daily mortality from respiratory and cardiovascular causes, and with hospital admissions for respiratory conditions); 4.3-15 (effects associated with longer-term exposures to high concentrations of SO2, in conjunction with high levels of PM, include aggravation of existing cardiovascular disease); and 4.3-22 (epidemiological studies report that chronic exposure to 1,3-butadiene by inhalation resulted in an increase in cardiovascular diseases).
Ye, D. et al. (2017). Estimating Acute Cardiorespiratory Effects of Ambient Volatile Organic Compounds.	This study investigated acute cardiorespiratory effects of ambient VOCs in Atlanta. The results of the study showed that hydrocarbon groups, particularly alkenes and alkynes, were associated with emergency department visits for cardiovascular diseases, while the ketone group was associated with emergency department visits for asthma. The authors concluded that the associations observed between emergency department visits for cardiovascular diseases and alkenes and alkynes may reflect the role of traffic exhaust, while the association between asthma visits and ketones may reflect the role of secondary organic compounds. This study was not specific to oil and gas activities,	The study is noted and will be considered by County decisionmakers. Please see GR-6. The 2015 FEIR and the SREIR analyzed the extent to which VOCs are emitted from various sources involved in oil and gas development activities. Specifically, the 2015 FEIR noted that VOCs are emitted from incomplete combustion of hydrocarbons or other carbon-based fuels. SREIR (October 2020), Vol. 3, at 4.3-17. Examples of VOCs that were described in the 2015 FEIR and the SREIR—and quantified in the HRAs—include benzene, toluene, and xylenes. The OEHHA Guidelines include conservative exposure RELs for target organ systems, including the cardiovascular, hematologic systems, and respiratory systems. The Revised HRA quantified health risk for acute and chronic noncancer risks for a variety of VOCs (benzene, toluene, xylenes) from various sources, such as oil storage tanks

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	but investigated links between cardiovascular diseases and VOC emissions from traffic exhaust.	and steam generators. The Revised HRA also quantified health risk from fugitive VOC emissions. See SREIR (October 2020), Vol. 2, Appendix B, at 4. None of the noncancer hazards exceeded the regulatory threshold hazard index of 1.0. The SREIR fully apprised the public and decisionmakers of the adverse health risks associated with VOC emissions from Project activities, and established a setback mitigation regime based on the results of the HRAs. This study presents no new information that would call into questions the 2015 FEIR and the SREIR's analyses of health effects from VOC emissions, or the adequacy of the HRAs and related setback mitigation measures.
Bard, D. et al. (2014). Traffic-Related Air Pollution and the Onset of Myocardial Infarction: Disclosing Benzene as a Trigger? A Small-Area Case-Crossover Study.	This study involved a case-crossover study from 2,134 cases of myocardial infarction recorded in the Strasbourg Metropolitan Area of France. The study sought to investigate whether exposure to traffic is an established risk factor for triggering myocardial infarction. The authors observed a positive, statistically significant association between concentrations of benzene and the onset of myocardial infarction.	The study is noted and will be considered by County decisionmakers. Please see GR-6. The results of this study focus on exposure to benzene in the ambient air from traffic exhaust in France, not oil and gas development activities. Nevertheless, the results of this study are consistent with the disclosures in the 2015 FEIR and the SREIR regarding benzene exposure. See SREIR (October 2020), Vol. 3, at 4.3-21 (benzene has noncancer related health effects; chronic inhalation of certain levels of benzene causes blood disorders in humans). In addition to these disclosures, the Revised HRA specifically assessed the extent to which acute and chronic exposure to benzene from numerous sources of oil and natural gas drilling and processing facilities. Under the OEHHA Guidelines (which the Revised HRA was performed pursuant to), the acute and chronic RELs for benzene were formed with particular consideration of the hematologic organ system. The HRA found that acute and chronic risks for benzene exposure from all sources fell below the applicable regulatory threshold hazard index of 1.0. Therefore, the Revised HRA and setback distances under MM 4.3-5 are sufficiently protective of health risks due to benzene exposure from oil and gas activities. This study presents no new information that would call into question the 2015 FEIR's and the SREIR's analyses of health effects from benzene emissions, or the adequacy of the HRAs and related setback mitigation measures.
Harrison, R. J. (2016). Sudden Deaths among Oil and Gas Extraction Workers Resulting from Oxygen Deficiency and Inhalation of Hydrocarbon Gases and Vapors — United States, January 2010–March 2015.	This monthly report recounts recent oil and gas worker deaths in the western United States and explains that the suspected cause of certain deaths was exposure to hydrocarbon gases and vapors and oxygen-deficient atmospheres after opening the hatches of hydrocarbon storage tanks.	The report is noted and will be considered by County decisionmakers. The worker details discussed in this report did not occur in California, but in Montana, North Dakota, Oklahoma, Colorado, and Texas. The suspected cause of these deaths (exposure to hydrocarbon gases and oxygen-deficient atmospheres) is strictly regulated under California regulations applicable to all oil and gas operators. See 8 Cal. Code. Regs. § 3203 (oil and gas operators are legally required to maintain safe and healthful workplaces, and have written, effective injury and illness prevention plans); § 6547(a)-(b) (maintenance work shall not be performed on the roof, reservoir, or shell of a tank at any location where the employee is exposed to hazardous concentration of flammable or toxic gases or vapors; and if such work is contemplated and there is reason to suspect such hazards may exist, tests shall be made of the atmosphere at the location of the proposed work); §6535(a) and § 6815(a) (before opening lines or other equipment, the pressure shall be reduced to atmospheric or as near atmospheric as is practicable); and § 5149 (except in extreme emergency involving imminent peril to life, employees shall not be permitted to work without approved respiratory equipment where the oxygen content of the air is less than 19 1/2 percent by volume (dry basis)).
Villeneuve, P. J. et al. (2013). A Cohort Study of Intra-urban Variations in Volatile Organic Compounds and Mortality, Toronto, Canada.	In this study of a cohort of adults living in Toronto, an increase in the interquartile range of ambient concentrations of VOCs was associated with approximately 3 to 8 percent increased mortality rate. Benzene and hydrocarbons were associated with an increased risk of cancer but NO ₂ was not. The results of this study suggested that non-traffic sources of VOCs contribute to the positive associations that were observed with cancer, and that increases in traffic-related pollution contributed to increased cardiovascular mortality.	The study is noted and will be considered by County decisionmakers. Please see GR-6. The 2015 FEIR and the SREIR analyzed the extent to which VOC are emitted from various sources involved in oil and gas development activities. Examples of VOCs that were described in the 2015 FEIR and the SREIR—and quantified in the HRAs—include benzene, toluene, and xylenes. The 2015 FEIR and the SREIR noted how benzene is highly carcinogenic and has noncancer related health effects. SREIR (October 2020), Vol. 3, at 4.3-21. The HRAs performed under the 2015 FEIR analyzed benzene (and other VOC) risk factors in terms of both cancer risk, as well as acute and chronic noncancer risk. For noncancer risks, the OEHHA Guidelines incorporate conservative exposure RELs for target organ systems, including the cardiovascular, hematologic systems, and respiratory systems. The Revised HRA quantified health risk for acute and chronic noncancer risks for a variety of VOCs (including benzene from various sources involved in oil and natural gas drilling and processing, such

Health Studies Submitted by Commenters	Summary of Findings	Responses to Study Cited by Commenters
		as oil storage tanks and steam generators. In all cases, the Revised HRA found that noncancer hazards fell below the regulatory threshold hazard index of 1.0. The SREIR fully apprised the public and decisionmakers of the adverse health risks associated with VOCs (including benzene) from Project activities, and established appropriate setbacks under MM 4.3-5 to be sufficiently protective of cancer and noncancer health risks.
Xu, X. et al. (2009). Association between Exposure to Alkylbenzenes and Cardiovascular Disease among National Health and Nutrition Examination Survey (NHANES) Participants.	This study analyzed the 1999–2004 National Health and Nutrition Examination Survey to examine the relationship between alkylbenzenes (including toluene, ethylbenzene, and xylenes) and the presence of cardiovascular disease. The study found that subjects in higher exposure categories of blood alkylbenzenes had higher prevalence of cardiovascular disease, as compared to subjects in the reference group, of below the limit of detection and less than the 50th percentile in the case of toluene and styrene. For the remainder of the alkylbenzenes, similar statistically significant associations were observed. The authors commented that further study is needed to explore associations between these highly prevalent pollutants and cardiovascular disease. This study was not specific to the oil and natural gas practices and did not involve any exposure assessments specific to oil and gas activities.	The study is noted and will be considered by County decisionmakers. Please see GR-6. Thirty-one HAPs were quantified and included in the Revised HRA, including ethylbenzene, toluene, and xylenes. The Revised HRA quantified health risk for acute and chronic noncancer risks for these HAPs and in all cases determined that hazards fell below the regulatory threshold hazard index of 1.0. This study therefore presents no new information that would call into questions the 2015 FEIR and the SREIR's analyses of health effects from HAP exposure (particularly for toluene, ethylbenzene, and xylenes), or the adequacy of the HRAs and related setback distances under MM 4.3-5.
Endocrine Disruption		
Bolden, A.L., Schultz, K., Pelch, K.E., Kwiatkowski, C.F. (2018). Exploring the Endocrine Activity of Air Pollutants Associated with Unconventional Oil and Gas Extraction. <i>Environmental Health</i> , 17:26	The authors of this report evaluated 48 studies that sampled air near sites of unconventional oil and gas activity and identified 106 chemicals detected in two or more studies. Ethane, benzene and n-pentane were the top three most frequently detected. Twenty-one chemicals were shown to have endocrine activity including estrogenic and androgenic activity and the ability to alter steroidogenesis. The literature reviewed also suggested that some of the air pollutants may affect reproduction, development, and neurophysiological function, all endpoints which can be modulated by hormones. These chemicals included aromatics (i.e., benzene, toluene, ethylbenzene, and xylene), several polycyclic aromatic hydrocarbons, and mercury. The authors concluded that the results provided a basis for prioritizing future primary studies regarding the endocrine disrupting properties of unconventional oil and gas air pollutants, including exposure research in wildlife and humans.	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA was performed pursuant to OEHHA Guidelines, which include a number of conservative assumptions and RELs that are specifically tailored to the endocrine target organ systems. See OEHHA Guidelines, Appendix L. The Revised HRA specifically quantified emissions and acute/chronic noncancer risks associated with the most common chemicals observed by this study, namely, benzene, toluene, ethylbenzene, and xylene. None of the acute impacts or chronic noncancer hazards for either an oil processing facility or a gas processing facility exceeded the regulatory threshold of 1.0.</p> <p>To the extent the study observed that ethane and n-pentane were among the chemicals commonly observed in other research studies, it is not clear whether the studies that were evaluated observed such chemicals in California. Further, neither ethane nor n-pentane are TACs under California regulations (17 Cal. Code. Regs. § 93000) or HAPs under federal law (42 U.S.C. § 7412).</p>
Noise		
Hays, J., McCawley, M., Shonkoff, S. B. C. (2017) Public Health Implications of Environmental Noise Associated with Unconventional Oil and Gas Development. <i>Science of The Total Environment</i> .	This study reviewed the scientific literature on environmental noise exposure to determine the potential concerns, if any, that noise from oil and gas development activities present to public health. The authors noted that there are a large number of noise-dependent and subjective factors that make the determination of a dose-response relationship between noise and health outcomes difficult, and that there is currently no peer-reviewed literature on the noise levels and potential health impacts from noise exposure related to oil and gas development. The authors also noted, however, that scientific literature indicates that oil and gas activities produce noise at levels that may increase the risk of adverse health outcomes, including annoyance, sleep disturbance, and cardiovascular disease. The authors also found that there is a more significant risk for annoyance and sleep disturbance because these effects can occur at lower noise thresholds but there may be less of a risk for cardiovascular health outcomes because most sources of noise from oil and gas development are temporary. The authors also determined that, since the levels of annoyance from noise exposure to oil and gas activities may be greater or less, depending on the individual receptor, individual variation presents a high degree of uncertainty for most	The study is noted and will be considered by County decisionmakers. This study is consistent with the SREIR's analysis of the Project's potential noise impacts, which discloses the effects of noise associated with oil and gas activities, including annoyance, sleep disturbance, and adverse health outcomes, including cardiovascular disease. SREIR (October 2020), Vol. 1, at 4.12-5, 8–10, 31, 33, and 38–48. For a discussion of the adequacy of the operational setbacks and mitigation triggering distances applicable to the Project, please see Responses to Comments 0008-20, 0008-21, 0010-34, and 0010-35, and GR-5 – Setback and Mitigation Measure Trigger Distances. For further discussion of this study, please also see SREIR (October 2020), Vol. 2, Appendix E, Supplemental Noise Technical Memorandum.

Health Studies Submitted by Commenters	Summary of Findings	Responses to Study Cited by Commenters
	potential health outcomes associated with noise exposure. The authors concluded that more research is needed to clarify noise exposure from oil and gas development as a potential health risk, though they recognized that an emerging body of epidemiology suggests an association between oil and gas development and adverse health outcomes.	
Richburg, C. M., & Slagley, J. (2019). Noise Concerns of Residents Living in Close Proximity to Hydraulic Fracturing Sites in Southwest Pennsylvania. <i>Public Health Nursing</i> , 36(1): 3-10.	This study evaluated noise levels among residents in Southern Pennsylvania residing near nontraditional gas industry sites. Sound level data and survey responses were collected from residential areas north and south of Pittsburgh, Pennsylvania. Noise measurements were collected both inside and outside of residences. The study observed that instantaneous sound levels measured outside certain neighborhoods near a compressor station and processing plant ranged from 48.3 to 56.3 A-weighted decibels (dBA) during daylight hours, and day-night levels of 53.5-69.4 dBA outside and 50.1 dBA inside on residence. The survey responses from residents indicated general health-related concerns associated with higher noise levels caused by the fracking process. The authors explained that the results of the study must be taken with consideration of underlying considerations. Specifically, the authors explained that (i) the survey questionnaire was pilot tested but not evaluated for reliability; (ii) the survey was only given to individuals who had previously expressed concerns about the impacts of hydraulic fracturing; (iii) several residents refused to complete the survey; (iv) the sample size was small (n=23); (v) the collected noise samples were biased, convenience samples obtained on public property or where residents allowed the collection of measurements; and (vi) the instruments used to collect noise samples had an artificial “floor” in which noise samples could not be recorded below 62 dBA. The authors determined however that research suggests that residents are concerned about the impacts of fracking noise to their health and concluded that healthcare professionals serving rural areas impacted by hydraulic fracturing should be aware of potential noise stressors on the populations they serve.	The study is noted and will be considered by County decisionmakers. This study is consistent with the SREIR’s analysis of the Project’s potential noise impacts, which discloses the effects of noise associated with oil and gas activities, including annoyance, sleep disturbance, and adverse health outcomes including cardiovascular disease. SREIR (October 2020), Vol. 1, at 4.12-5, 8–10, 31, 33, and 38–48. For a discussion of the adequacy of the operational setbacks and mitigation triggering distances applicable to the Project, please see Responses to Comments 0008-20, 0008-21, 0010-34, 0010-35, and GR-5 – Setback and Mitigation Measure Trigger Distances. For further discussion of this study, please also see SREIR (October 2020), Vol. 2, Appendix E, Supplemental Noise Technical Memorandum.
Boyle, M.D., Soneja, S., Quiros-Alcala, L., Dalemarré, L., Sapkota, A. R., Sangaramoorthy, T., Wilson, S., Milton, D., Sapkota, A. (2017). A Pilot Study to Assess Residential Noise Exposure Near Natural Gas Compressor Stations. <i>PLoS ONE</i> , 12(4): e0174310.	The objective of this pilot study was to characterize noise levels in 11 homes located in Doddridge County, West Virginia. Specifically, the authors investigated 24-hour noise levels of a natural gas compressor station relative to residential homes in West Virginia, and determined that homes up to 600 meters away (about 1,968 feet) experienced outdoor noise levels exceeding the U.S. Environmental Protection Agency’s recommended limit to prevent activity interference and annoyance. This pilot study involved a small sample size of only eight homes located within 750 meters of the nearest compressor station evaluated, and three homes within 1000 meters of the nearest compressor station evaluated. The pilot study determined that living near natural gas compressor stations could potentially result in high environmental noise exposures, but that larger studies are needed to confirm its findings and to evaluate potential health impacts and protection measures.	The study is noted and will be considered by County decisionmakers. This study is consistent with the SREIR’s analysis of the Project’s potential noise impacts, which discloses the effects of noise associated with oil and gas activities and assessed the Project’s operational noise impacts. SREIR (October 2020), Vol. 1, at 4.12-5, 8–10, 31, and 33 –48. For a discussion of the adequacy of the operational setbacks and mitigation triggering distances applicable to the Project, please see Responses to Comments 0008-20, 0008-21, 0010-34, 0010-35, and GR-5. For further discussion of this study, please also see SREIR (October 2020), Vol. 2, Appendix E, Supplemental Noise Technical Memorandum.
Radtke, C., Autenrieth, D.A., Lipsey, T., Brazile, W.J. (2017). Noise Characterization of Oil and Gas Operations. <i>Journal of Occupational and Environmental Hygiene</i> , 14(8): 659667.	This study involved noise monitoring at 23 oil and gas sites in Northern Colorado, and was conducted to measure and compare noise levels for the different phases of oil and gas development sites, evaluate the effectiveness of noise barriers, and determine if noise levels exceed the Colorado Oil and Gas Conversation Commission noise limits for residential and commercial zones (55 dBA and 60 dBA respectively). The study determined that there was a difference in noise levels between different phases of oil and gas development, but that due to the limited number of available sampling sites, the researchers could not determine if the differences were statistically significant. The study observed that hydraulic fracturing sites had the highest noise levels, but as	The study is noted and will be considered by County decisionmakers. This study contains no information that would call into question the SREIR’s analysis of the Project’s potential noise impacts, which analyzed noise effects against an absolute noise threshold of 65 dB per day-night average level (DNL) and against a two-pronged incremental noise threshold. Where ambient noise is at or above 65 dB DNL (the Kern County General Plan’s noise level limit), Project activities may increase the ambient noise by no more than 5 dB and, where ambient noise is at or above 65 dB, Project activities may increase the ambient noise by no more than 1 dB. SREIR (October 2020), Vol. 1, at 4.12-24–49. For a discussion of the adequacy of the operational setbacks and mitigation triggering distances applicable to the Project, please see Responses to Comments 0008-20, 0008-

Health Studies Submitted by Commenters	Summary of Findings	Responses to Study Cited by Commenters
	the distance from the noise source increased, the average noise levels for hydraulic fracturing sites became very similar to average noise levels of drilling sites. The study found that “every drilling and hydraulic fracturing site within and without noise walls had average noise measurements at 350 feet (107 m) that exceeded the current [Colorado] residential daytime and night time noise limits.” By contrast, even at these very close distances, the study determined that the vast majority of production sites did not exceed 55 decibels (dB).	21, 0010-34, 0010-35, and GR-5. For further discussion of this study, please also see SREIR (October 2020), Vol. 2, Appendix E, Supplemental Noise Technical Memorandum.
Blair, B.D., Brindley, S., Dinkeloo, E., McKenzie, L.M., Adgate, J.L. (2018). Residential Noise from Nearby Oil and Gas Well Construction and Drilling. <i>Journal of Exposure Science & Environmental Epidemiology</i> , 1.	This study documented the noise levels at four sensitive receptors surrounding a multi-well oil and gas well pad during construction and drilling in a residential area in Colorado. These receptors were located between 1,050 feet and 1,805 feet from the noise source, but no specific distances were provided. Although the study determined that homes in closer proximity to operations experienced noise exposure levels of concern even with the implementation of sound mitigation, the equivalent continuous sound level measured at the sites ranged from 51.5 to 60.2 dB sampling at a single large multi-well pad over three months, [and thus] may not be indicative of the noise from oil and gas operations at other locations with different topography, wind patterns, or noise mitigation strategies The study recommended that additional studies be performed to determine noise levels “of other communities with large, multi-well oil and gas construction and drilling sites.” The study observed generally that noise levels exceeding 50 dBA and 60 C-weighted decibels (dBC) may cause annoyance and be detrimental to health.	The study is noted and will be considered by County decisionmakers. This study contains no information that would call into questions the SREIR’s analysis of the Project’s potential noise impacts, which analyzed noise effects against an absolute noise threshold of 65 dB DNL and against a two-pronged incremental noise threshold. Where ambient noise is at or above 65 dB DNL (the Kern County General Plan’s noise level limit), Project activities may increase the ambient noise by no more than 5 dB and, where ambient noise is at or above 65 dB, Project activities may increase the ambient noise by no more than 1 dB. SREIR (October 2020), Vol. 1, at 4.12-24–49. This study’s observation concerning annoyance and adverse health effects is consistent with the SREIR’s analysis of the Project’s potential noise impacts, which discloses the effects of noise associated with oil and gas activities and assessed the Project’s operational noise impacts. SREIR (October 2020), Vol. 1, at 4.12-5, 8–10, 31, and 33–48. For a discussion of the adequacy of the operational setbacks and mitigation triggering distances applicable to the Project, please see Responses to Comments 0008-20, 0008-21, 0010-34, 0010-35, and GR-5. For further discussion of this study, please also see SREIR (October 2020), Vol. 2, Appendix E, Supplemental Noise Technical Memorandum.
Mental Health Studies		
Casey, J. A., Wilcox, H. C., Hirsch, A. G., Pollak, J., Schwartz, B. S. (2018). Associations of Unconventional Natural Gas Development with Depression Symptoms and Disordered Sleep in Pennsylvania. <i>Scientific Reports</i> , 8(1): 11375.	This study investigated whether UNGD was associated with depression symptoms and sleep disorders using patient health questionnaire and electronic health record data among Geisinger adult primary care patients in Pennsylvania. Participants received a retrospective metric for UNGD at their residence (very low, low, medium, and high) that incorporated dates and durations of well development, distance from patient homes to wells, and well characteristics. The results showed that 4,762 participants with no (62 percent), mild (23 percent), moderate (10 percent), and moderately severe or severe (5 percent) depression symptoms in 2014 to 2015 and 3,868 disordered sleep diagnoses between 2009 and 2015. The authors observed associations between living closer to more and bigger wells and depression symptoms, but not disordered sleep diagnoses in models weighted to account for sampling design and participation. High UNGD was associated with depression symptoms in an adjusted negative binomial model, and high and low UNGD were associated with depression symptoms in an adjusted multinomial logistic model.	<p>The study is noted and will be considered by County decisionmakers. This study contains no information that would call into questions the SREIR’s analysis or reliance on health risk-based and noise-based setbacks, as established in MMs 4.3-5, 4.12-1, and 4.12-2. The study did not perform any exposure assessment of any mediums that might be contributable to depression or sleep disorders, nor does it suggest setback distances tailored to those health effects.</p> <p>Also, the study suffers from a number of deficiencies. Of the 23,700 letters sent to patients of the Geisinger adult primary care patients, only 4,966 residents responded to the study’s questionnaire (representing a response rate of 20.95 percent. Such a low response rate may prevent the generalizability of the study’s results. Of the 4,966 respondents, 62 percent reported no depression at all. In addition, the authors did not collect any quantitative exposure measurements such as air quality, light, vibration, traffic, or noise level measurements, but noted in general terms that prior research may indicate that air, noise, and light pollution may contribute to mental health consequences. In other words, the authors mention “the biologically plausible relationship with UNGD” but do not describe any potential exposure pathways for UNGD to cause mental health outcomes or clinically diagnosed sleep issues. The study does not evaluate the extent to which study participants had depressive symptoms or disordered sleep before UNGD began in this region, but assumes the outcomes measured occurred after UNGD exposure. Finally, the authors stated that “Perceived changes in quality of life, health effects, or resource loss, as well as feelings of disempowerment, a disrupted sense of place and loss of community cohesion could potentially explain our observed association between UNGD activity and depression symptoms.” The authors do not consider or explain how mild depression symptoms could explain changes in quality of life, feelings of disempowerment, a disrupted sense of place, and loss of community cohesion. In other words, the study does not establish temporality of exposure and outcomes and the authors do not address the possibility of reverse causation.</p>

Health Studies Submitted by Commenters	Summary of Findings	Responses to Study Cited by Commenters
Sangaramoorthy, T., Jamison, A.M., Boyle, M.D., Payne-Sturges, D.C., Sapkota, A., Milton, D.K., Wilson, S.M. (2016). Place-based Perceptions of the Impacts of Fracking along the Marcellus Shale.	This study examined community perspectives and experiences with hydraulic fracturing in Doddridge County, West Virginia, chiefly, to investigate the potential health impacts associated with hydraulic fracturing in Maryland. In November 2013, the study's authors held two focus groups with community residents who had been impacted by fracking operations and conducted field observations in the impacted areas. Employing grounded theory, the study performed a qualitative analysis to explore emergent themes related to direct and indirect health impacts of fracking. The study's findings indicate that fracking contributes to a disruption in residents' sense of place and social identity, generating widespread social stress.	<p>The study is noted and will be considered by County decisionmakers. This study contains no information that would call into questions the SREIR's analysis or reliance on health risk-based and noise-based setbacks, as established in MMs 4.3-5, 4.12-1, and 4.12-2. The study did not perform any exposure assessment of any mediums that might be contributable to stress or similar symptoms, nor does it suggest setback distances tailored to such symptoms.</p> <p>Also, this study suffers from a number of deficiencies. As a preliminary matter, the study involved a series of focus group meetings. By the authors' own admissions, the study involved biased sampling: participants recruited to the focus groups were "residents who were engaged and impacted by fracking, rather than to seek a representative sample" and the authors "were not able to recruit representative numbers of residents impacted by fracking at the county or state level." Also, four of the authors "participated in a multi-day trip . . . to local fracking sites and residences" and that their observations "were crucial in shaping analysis." This statement may represent bias on behalf of the authors, and that the study's findings may not have been governed by an a priori hypothesis. Further, because the questions asked of focus group participants were not provided, it is impossible to determine whether the study's results demonstrate participant observations or mere affirmations of authors' questions. In other words, the study notes that "the most mentioned health effect was psychosocial stress," but it is impossible to determine whether this response was given on focus group participants' own volition or expressly used by the authors.</p>
Casey, J. et al. (2019). Unconventional Natural Gas Development and Adverse Birth Outcomes in Pennsylvania: The Potential Mediating Role of Antenatal Anxiety and Depression.	This study involved a retrospective cohort study of mothers without prevalent anxiety or depression at time of conception, who delivered at Geisinger in Pennsylvania between January 2009 and January 2013. The authors assembled phase-specific UNGD data from public sources. Mothers were categorized as exposed (quartile 4) or unexposed (quartiles 1–3) based on average daily inverse distance-squared UNGD activity metric between conception and the week prior to anxiety or depression (cases) or the pregnancy-average daily metric (non-cases). The authors estimated associations with a doubly robust estimator and adjusted for potential individual- and community-level confounding variables. The study observed a relationship between UNGD activity and antenatal anxiety and depression, which did not mediate the overall association between UNGD activity and adverse birth outcomes. Analyses included 8,371 births to 7,715 mothers, 12.2 percent of whom had antenatal anxiety or depression. The authors found 4.3 additional cases of antenatal anxiety or depression per 100 women under the scenario where all mothers lived in the highest quartile of UNGD activity versus quartiles 1–3.	<p>The study is noted and will be considered by County decisionmakers. The study suffers from a number of limitations and deficiencies. First, the authors note that their study "adds to the limited evidence that unconventional natural gas development adversely affects birth outcomes." which could be considered an over-interpretation of their association results. In other words, the authors suggest that their findings support causality between adverse birth effects and UNGD activities, when, in fact, their study found small statistical associations between activity index and preterm births.</p> <p>In addition, the study did not perform any exposure assessment of any media that may be attributable to antenatal anxiety and depression. Rather, the researchers obtained data on UNGD locations from the Pennsylvania Department of Environmental Protection, and "estimated weekly UNGD activity metrics using an inverse distance-squared method." The factors that went into the model included number of wells, distance between wells and home address, total well depth, and daily gas production volume. It is unclear whether the exposure metric has been validated. The researchers noted that "although the densest development is in the northwest and many of these wells are decades old and non-producing, there was still collinearity between our activity index and conventional gas proximity metrics." The authors fail to explain the collinearity of non-producing wells and how this impacts their exposure metric.</p> <p>The study's selection of potential confounding factors is also subject to critique. For example, the study identified smoking status during pregnancy as one potential confounding factor, but excluded alcohol use. It is unclear whether the authors determined that alcohol use was not a confounder, and whether they used a directed acyclic graph (DAG) or other model to exclude other potentially confounding factors (e.g., diet, genetic history of preterm birth defects). Nor did the authors adjust their model for blood pressure and the number of prenatal healthcare visits, when it is possible that blood pressure and the number of prenatal healthcare visits could also be associated with preterm births and related effects. Lastly, the authors categorized the study population's receipt of medical assistance in terms of "ever" or "never." This binary categorization may have resulted in misclassifications.</p>

Health Studies Submitted by Commenters	Summary of Findings	Responses to Study Cited by Commenters
Other Adverse Health Outcomes		
Denham, A., Willis, M., Zavez, A. Hill, E., Unconventional Natural Gas Development and Hospitalizations: Evidence from Pennsylvania, United States, 2003-2014. <i>Public Health</i> , 168:17-25.	The study's objective was to examine relationships between short- and long-term exposures to UNGD and county hospitalization rates by analyzing county-level data for Pennsylvania from 2004 to 2014. The study observed a positive association of cumulative well density with genitourinary hospitalization rates, driven primarily by females in the 20–64 age group, for kidney infections, calculus of ureter, and urinary tract infection. The study did not entail any exposure assessments, but noted generally that the UNGD process uses a number of toxic chemicals that are released into the atmosphere and can enter water supply. The study did <u>not</u> , however, find evidence of associations between UNGD and hospitalizations for other broad disease categories.	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA was performed pursuant to the OEHHA Guidelines. The OEHHA Guidelines established acute and chronic RELs, which are defined as the concentration at which no adverse noncancer health effects are anticipated even in sensitive members of the general population, with infrequent one hour exposures, or continuous exposure over a significant fraction of a lifetime, respectively. OEHHA Guidelines, at p. 2–3. Certain RELs established under OEHHA's Guidance that were used to analyze sources under the Revised HRA are tailored to the reproductive and development target organ systems and the kidney.</p> <p>While this study did not focus on any particular chemicals or substances from oil and gas development activities, the findings of this study are nevertheless consistent with the 2015 FEIR and the SREIR's qualitative disclosures as to how certain HAPs may lead to adverse effects on the reproductive system and kidney. See SREIR (October 2020), Vol. 3, at 4.3-16 (exposure to lead can affect the kidneys); 4.3-18–19 (noting long-term exposure to vinyl chloride concentrations has been linked to reproductive/developmental health effects); 4.3-23 (acute inhalation and oral exposure to carbon tetrachloride has been observed to damage kidneys); and 4.3-23 (chronic exposure to chromium may produce effects on the kidney).</p>
McKenzie, L.M., Allshouse, W.B., Byers, T.E., Bedrick, E.J., Serdar, B., Adgate, J.L. (2017). Childhood Hematologic Cancer and Residential Proximity to Oil and Gas Development. <i>PLoS ONE</i> , 12(2): e0170423	Using a registry-based case-control study design, this study explored whether residential proximity to oil and gas development was associated with risk of hematologic cancers. Participants were 0±24 years old, living in rural Colorado, and diagnosed with cancer between 2001±2013. For each child in the study, the authors calculated inverse distance weighted oil and gas well counts within a 16.1-kilometer radius of residence at cancer diagnosis for each year in a 10-year latency period to estimate density of oil and gas development. The study found that subjects aged 5 to 24 years diagnosed with acute lymphocytic leukemia were 3 to 4 times as likely to live in areas with active oil and gas wells as were children diagnosed with non-hematologic cancers, and the association between acute lymphocytic leukemia and residential density of oil and gas wells increased monotonically from the lowest to highest inverse distance weighted well count categories after adjusting for age, race, gender, socioeconomic status, and elevation. Further adjustment for year of cancer diagnosis resulted in a slightly larger association in children aged 5 to 24 years. The study did not observe an association between acute lymphocytic leukemia and density of active oil and gas wells in children aged 0±4 years.	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. While this study did not entail specific exposure assessments, it did focus primarily on benzene exposure as a driver of hematologic cancers in children. See, p. 11 of the study (“One possible environmental risk factor for childhood ALL that is associated with oil and gas development is exposure to benzene and other petroleum hydrocarbons. Ambient air benzene levels in Colorado areas with active oil and gas development ranged from 0.03±22 parts per billion by volume (ppbv)”). The Revised HRA assessed cancer risk (as well as acute and chronic noncancer risks) for benzene, and the Multi-Well HRA assessed cancer risk specifically for benzene. Both HRAs were performed pursuant to the OEHHA Guidelines, which contains “explicit consideration of infants and children in assessing risks from air toxics, necessitated revisions of the methods for both noncancer and cancer risk assessment, and of the exposure variates.” OEHHA Guidelines, at p. 1.</p> <p>In addition to the HRAs conservative assumptions for infant and children exposure, the 2015 FEIR and the SREIR sufficiently disclosed known effects from benzene exposure in terms of cancer and noncancer health effects. See SREIR (October 2020), Vol. 3, at 4.3-21–22 (noting that benzene is highly carcinogenic, occurs throughout California, and that the primary sources of benzene emissions in the San Joaquin Valley Air Basin are mobile sources (approximately 67 percent) and stationary sources (approximately 32 percent). The 2015 FEIR expressly noted that exposure to benzene can lead to increased incidence of leukemia (cancer of the tissues in form white blood cells).</p>
Weinberger, B., Denha, L.H., Walleigh, L., Brown, D. (2017). Health Symptoms in Residents Living Near Shale Gas Activity: A Retrospective Record Review from the Environmental Health Project. Preventive Medicine Reports.	The purpose of this study was to describe the health of adults in communities with intense UNGD who presented for evaluation of symptoms. Records of 135 structured health assessments conducted between February 2012 and October 2015 were reviewed retrospectively. The study found that the 51 adults of the study population had reported at least one symptom on their health assessment, and denied occupation exposure related to natural gas extraction and lived in Pennsylvania within 1 km of an unconventional natural gas well. The most commonly reported symptoms in this sample of adults were sleep disruption, headache, throat irritation, stress/anxiety, cough, shortness of breath, sinus problems, fatigue, nausea, and wheezing.	The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA was performed pursuant to the OEHHA Guidelines. Under the OEHHA Guidelines, acute and chronic RELs are defined as the concentration at which no adverse noncancer health effects are anticipated even in sensitive members of the general population, with infrequent 1 hour exposures, or continuous exposure over a significant fraction of a lifetime, respectively. See OEHHA Guidelines, at p. 2–3. Dose-response data developed was used to develop acute and chronic noncancer RELs. The acute and chronic RELs are defined as the concentration at which no adverse noncancer health effects are anticipated even in sensitive members of the general population, with infrequent 1 hour exposures or continuous exposure over a significant fraction of a lifetime, respectively. The most sensitive health effect is chosen to develop the REL if the chemical affects

Health Studies Submitted by Commenters	Summary of Findings	Responses to Study Cited by Commenters
		<p>multiple organ systems. Noncancer health effects are assumed to have thresholds for adverse effects. In other words, injury from a pollutant will not occur until exposure to that pollutant has reached or exceeded a certain concentration (i.e., threshold) and/or dose. The RELs for substances analyzed in the Revised HRA accounted for target organ systems that correlate to the respiratory and other health effects mentioned in the study.</p> <p>In addition to the HRA and its conservative assumptions, the 2015 FEIR and the SREIR qualitatively disclosed known health effects from criteria pollutants and HAPs associated with oil and gas activities, including but not limited to, headaches, fatigue, nausea and respiratory complications. SREIR (October 2020), Vol. 3, at 4.3-10–31. This study presents no new information that would call into question the 2015 FEIR and the SREIR’s analyses of health effects from oil and gas activities, or the adequacy of the HRAs and related setback mitigation measures.</p>
Tustin, A.W., Hirsch, A.G., Rasmussen, S.G., Casey, J.A., Bandeen-Roche, K., Schwartz, B.S. (2016). Associations between Unconventional Natural Gas Development and Nasal and Sinus, Migraine Headache, and Fatigue Symptoms in Pennsylvania. <i>Environmental Health Perspectives</i> .	Using a self-administered questionnaire to 23,700 adult patients of the Geisinger Clinic, Pennsylvania, this study sought to investigate associations between unconventional natural gas activities in Pennsylvania and health symptoms. Of 7,785 study participants, 1,850 (24 percent) had current chronic rhinosinusitis symptoms, 1,765 (23 percent) had migraine headache, and 1,930 (25 percent) had higher levels of fatigue. The authors concluded that the study provides evidence that UNGD is associated with nasal and sinus, migraine headache, and fatigue symptoms in a general population representative sample.	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA was performed pursuant to the OEHHA Guidelines. Under the OEHHA Guidelines, acute and chronic RELs are defined as the concentration at which no adverse noncancer health effects are anticipated even in sensitive members of the general population, with infrequent 1 hour exposures over a significant fraction of a lifetime, or continuous exposure over a significant fraction of a lifetime, respectively. OEHHA Guidelines, p. at 2–3. Dose-response data developed was used to develop acute and chronic noncancer RELs. The acute and chronic RELs are defined as the concentration at which no adverse noncancer health effects are anticipated even in sensitive members of the general population, with infrequent one hour exposures, or continuous exposure over a significant fraction of a lifetime. The most sensitive health effect is chosen to develop the REL if the chemical affects multiple organ systems. The RELs for substances analyzed in the Revised HRA accounted for target organ systems that correlate to the respiratory and other health effects mentioned in the study.</p> <p>In addition to the HRA and its conservative assumptions, the 2015 FEIR and the SREIR qualitatively disclosed known health effects from criteria pollutants and HAPs associated with oil and gas activities, including but not limited to headaches, fatigue, nausea, and respiratory complications. SREIR (October 2020), Vol. 3, at 4.3-10–31.</p>
Jemielita, T., Gerton, G. L., Neidell, M., Chillrud, S., Yan, B., Stute, M., Howarth, M., Saberi, P., Fausti, N., Penning, T.M., Roy, J., Propert, K.J., Panettieri, R. A., Jr. (2015). Unconventional Gas and Oil Drilling Is Associated with Increased Hospital Utilization Rates. PLoS ONE, 10(7).	This study examined associations between unconventional oil and gas wells and health consequences of toxicant exposure. The study found that cardiology inpatient prevalence rates were significantly associated with number of wells per zip code and wells per km ² , while neurology inpatient prevalence rates were significantly associated with wells per km ² . Furthermore, evidence also supported an association between well density and inpatient prevalence rates for the medical categories of dermatology, neurology, oncology, and urology. The study’s data suggest that unconventional oil and gas wells were associated with increased inpatient prevalence rates within specific medical categories in Pennsylvania.	The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA measured acute and chronic exposure to criteria pollutants and HAPs associated with oil and gas activities. RELs are defined as the concentration at which no adverse noncancer health effects are anticipated even in sensitive members of the general population, with infrequent 1 hour exposures, or continuous exposure over a significant fraction of a lifetime. Although the study did not entail an exposure assessment, it did note the following toxicants and VOCs as a driver of known health effects: benzene, ethylbenzene, toluene, and xylene—each of which were included in the Revised HRA. In addition to the HRA and its conservative assumptions, the 2015 FEIR and the SREIR qualitatively disclosed known health effects from criteria pollutants and HAPs associated with oil and gas activities. See SREIR (October 2020), Vol. 3, at 4.3-10–31.
Steinzor, N., Subra, W., Sumi, L. (2013). Investigating Links between Shale Gas dDevelopment and Health Impacts through a Community Survey Project in Pennsylvania. <i>New Solutions: A Journal of Environmental and Occupational Health Policy</i> . 23(1): 55-83	This study comprised a self-reporting health survey and environmental testing that investigated the extent and types of health symptoms experienced by people living in gas development areas in Pennsylvania.	The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA measured acute and chronic exposure to criteria pollutants and HAPs associated with oil and gas activities. The Revised HRA quantified emissions and acute and chronic health risk of all HAPs noted in this study that are associated with oil and natural gas activities. The study discusses a number of compounds that are either not regulated as HAPs, or are not emitted during oil and

Health Studies Submitted by Commenters	Summary of Findings	Responses to Study Cited by Commenters																																																																								
	<p>The first portion of the study was a survey completed by 108 individuals in 55 households in 14 counties across Pennsylvania, with the majority (85 percent) collected in Washington, Fayette, Bedford, Bradford, and Butler counties. Almost half of the survey participants answered the question on whether they had any health problems prior to shale gas development. A little less than half of those responses indicated no health conditions before the development began and a little more than half reported having had one or just a few—in particular allergies, asthma, arthritis, cancer, high blood pressure, and heart, kidney, pulmonary, and thyroid conditions were named by respondents.</p> <p>In the second phase, 34 air tests and nine water tests were conducted at 35 households. The air tests detected a total of 19 VOCs in ambient air sampled outside of homes. The water tests revealed that the 26 parameters were detected in at least one sample.</p>	<p>natural gas activities. The authors of the study confirmed this stating that “[the Pennsylvania Department of Environmental Protection] indicated that some of the VOCs found in the study may not be due to oil and gas development since they persist in the atmosphere and have been widely used (for example, as refrigerants), the agency also indicates that acetane and [benzene, toluene, ethylbenzene and xylene (BTEX)] chemicals can be attributed to gas development.” Please see the following table of HAPs referenced in this study that were analyzed in the Revised HRA and determined not to result in either an acute or chronic noncancer risk.</p> <table><tr><th>Compound</th><th>California HAP? (Y/N)</th><th>Assessed in Revised HRA? (Y/N)</th><th>Emitted from Oil and Gas Exploration and Production?</th></tr><tr><td>2-Butanone (MEK)</td><td>Y</td><td>N</td><td>N</td></tr><tr><td>Acetone</td><td>N</td><td>N</td><td>N</td></tr><tr><td>Chloromethane (Methyl Chloride)</td><td>N</td><td>N</td><td>N</td></tr><tr><td>1,1,2-Trichloro-1,2,2-trifluoroethane</td><td>N</td><td>N</td><td>N</td></tr><tr><td>Carbon Tetrachloride</td><td>Y</td><td>N</td><td>N</td></tr><tr><td>Trichlorofluoromethane</td><td>N</td><td>N</td><td>N</td></tr><tr><td>Toluene</td><td>Y</td><td>Y</td><td>Y</td></tr><tr><td>Dichlorofluoromethane</td><td>N</td><td>N</td><td>N</td></tr><tr><td>n-Hexane</td><td>Y</td><td>Y</td><td>Y</td></tr><tr><td>Benzene</td><td>Y</td><td>Y</td><td>Y</td></tr><tr><td>Methylene chloride</td><td>Y</td><td>N</td><td>N</td></tr><tr><td>Tetrachloroethylene</td><td>Y</td><td>N</td><td>N</td></tr><tr><td>1,2,4-Trimethylbenzene</td><td>N</td><td>Y</td><td>Y</td></tr><tr><td>Ethylbenzene</td><td>Y</td><td>Y</td><td>Y</td></tr><tr><td>Trichloroethylene</td><td>Y</td><td>N</td><td>N</td></tr><tr><td>Xylenes</td><td>Y</td><td>Y</td><td>Y</td></tr><tr><td>1,2-Dichloroethane</td><td>N</td><td>N</td><td>N</td></tr></table>	Compound	California HAP? (Y/N)	Assessed in Revised HRA? (Y/N)	Emitted from Oil and Gas Exploration and Production?	2-Butanone (MEK)	Y	N	N	Acetone	N	N	N	Chloromethane (Methyl Chloride)	N	N	N	1,1,2-Trichloro-1,2,2-trifluoroethane	N	N	N	Carbon Tetrachloride	Y	N	N	Trichlorofluoromethane	N	N	N	Toluene	Y	Y	Y	Dichlorofluoromethane	N	N	N	n-Hexane	Y	Y	Y	Benzene	Y	Y	Y	Methylene chloride	Y	N	N	Tetrachloroethylene	Y	N	N	1,2,4-Trimethylbenzene	N	Y	Y	Ethylbenzene	Y	Y	Y	Trichloroethylene	Y	N	N	Xylenes	Y	Y	Y	1,2-Dichloroethane	N	N	N
Compound	California HAP? (Y/N)	Assessed in Revised HRA? (Y/N)	Emitted from Oil and Gas Exploration and Production?																																																																							
2-Butanone (MEK)	Y	N	N																																																																							
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Xylenes	Y	Y	Y																																																																							
1,2-Dichloroethane	N	N	N																																																																							
Paulik, Blair L., Environmental and Individual PAH Exposures Near Rural Natural Gas Extraction. 241 <i>Environmental Pollution</i> , 397 (2018).	<p>This study used low-density polyethylene passive samplers to measure concentrations of polycyclic aromatic hydrocarbons in air near active and proposed natural gas extraction sites in Carroll County and bordering counties of rural eastern Ohio. Silicone wristbands were used to assess personal PAH exposures of participants living or working near the sampling sites. The authors observed that PAH exposure was significantly higher in air at active natural gas extraction sites, and that PAH was also significantly higher in wristbands from participants who had active natural gas extraction wells on their properties than from participants who did not. The study's findings suggest that living or working near an active natural gas extraction well may increase personal PAH exposure.</p>	<p>The study is noted and will be considered by County decisionmakers. Please see GR-6. The Revised HRA quantified emissions of 31 HAPs associated with oil and natural gas production equipment, including PAHs. The Revised HRA explained that PAHs “refer to a group of several hundred chemically-related, environmentally persistent organic compounds of various structures and varied toxicity. Most of them are formed by a process of thermal decomposition (pyrolysis) and subsequent recombination (pyrosynthesis) of organic molecules.” SREIR (October 2020), Vol. 2, Appendix B, at 4. The Revised HRA explained that PAHs have been shown to cause carcinogenic and mutagenic effects, as well as documented effects on immune system development. The Revised HRA concluded that none of the noncancer hazards for either an oil processing facility or a gas processing facility exceeded the regulatory threshold of 1.0. In addition to the HRAs, the 2015 FEIR and the SREIR disclosed health effects associated with exposure to PAHs. SREIR (October 2020), Vol. 3, at 4.3-26.</p>																																																																								

Health Studies Submitted by Commenters	Summary of Findings	Responses to Study Cited by Commenters
Environmental Justice Reports		
Johnston, J., and L. Cushing (2020). Chemical Exposures, Health, and Environmental Justice in Communities Living on the Fenceline of Industry.	The authors of this report described recent developments in assessing pollutant exposures and health threats posted by industrial facilities using or releasing synthetic chemicals to nearby communities in the United States. The report concluded that new and legacy industries (including oil and gas extraction), coupled with climate change, present unique health risks to communities living near industry due to the release of toxic chemicals, and that the cumulative impacts from multiple stressors faced by environmental justice communities may amplify these adverse effects.	The study is noted and will be considered by County decisionmakers. This study presents no new information that would call into question the 2015 FEIR and the SREIR's analyses of health effects from oil and gas activities or the adequacy of the HRAs and related setback mitigation measures.
Morello-Frosch, R., Zuk, M., Jerrett, M., Shamasunder, B., Kyle, A. D. (2011). Understanding the Cumulative Impacts of Inequalities in Environmental Health: Implications for Policy. <i>Health Affairs</i> (Millwood), 30(5): 879-887.	This report synthesized existing scientific evidence regarding the cumulative health implications of higher rates of exposure to environmental hazards, along with individual biological susceptibility and social vulnerability. The authors concluded that current environmental policy, which is focused on pollutants and their sources, should be broadened to take into account the cumulative impact of exposures and vulnerabilities encountered by people who live in neighborhoods consisting largely of racial or ethnic minorities or people of low socioeconomic status. While the report states that prior research shows a correlation of disadvantaged communities in proximity to industrial facilities, it does not specifically mention oil and natural gas exploration and extraction activities.	The study is noted and will be considered by County decisionmakers. This study presents no new information that would call into question the 2015 FEIR and the SREIR's analyses of health effects from oil and gas activities or the adequacy of the HRAs and related setback mitigation measures.

10 EarthJustice

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October 2, 2020

Via Email and Federal Express

Kern County Planning and Natural Resources Department
 Attn: Cindi Hoover, Lead Planner
 2700 “M” Street, Suite 100
 Bakersfield, CA 93301
hooverc@kerncounty.com
planning@kerncounty.com

Re: Supplemental Comments on the Draft Supplemental Recirculated Environmental Impact Report for Revisions to Title 19-Kern County Zoning Ordinance (2020-A) Focused on Oil and Gas Local Permitting (SCH # 2013081079)

Dear Ms. Hoover:

On behalf of Center for Biological Diversity, Center on Race, Poverty & the Environment, Comité Progreso de Lamont, Comité de Lost Hills en Acción, Committee for a Better Arvin, Committee for a Better Shafter, Earthjustice, Greenfield Walking Group, Natural Resources Defense Council, and Sierra Club, we are writing to submit the following supplemental comments regarding the Draft Supplemental Recirculated Environmental Impact Report (the Draft SREIR) for “Revisions to Title 19-Kern County Zoning Ordinance (2020-A) Focused on Oil and Gas Local Permitting” (the Ordinance). These comments contain new information that has arisen since we filed a comment letter regarding the Draft SREIR on September 16, 2020 (the September 16 Letter), as well as some further discussion of issues that require Kern County (the County)’s consideration to ensure the Ordinance complies with the California Environmental Quality Act (CEQA)¹ and CEQA Guidelines.² We trust the County will consider and provide responses to these supplemental comments, which are timely filed.³

I. Drilling in the County Disproportionately Affects Low-Income, Already Over-Burdened, and Linguistically Isolated Hispanic/Latinx Community Members.

In sections II and VIII.A.2 of the September 16 Letter, we discussed how upstream oil and gas development activities frequently and disproportionately are located in close proximity to low-income, Hispanic or Latinx,⁴ and Spanish-speaking communities in Kern County. We continue to urge the County to take immediate steps to make the public process for the Ordinance accessible in Spanish. All Kern County residents, especially its Hispanic and Spanish-speaking populations, low-income communities, and other vulnerable residents, deserve a

¹ Pub. Resources Code § 21000 *et seq.*

² California Code of Regulations, title 14, § 15000 *et seq.*

³ *Berkeley Keep Jets Over the Bay Com. v. Bd. of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1370, fn. 14 (“it has been held that objections are timely raised *anytime* before certification of the final EIR”).

⁴ We appreciate that many community members prefer to refer to themselves as Latinx rather than Hispanic. These comments include the term Hispanic to reflect the terminology used by the U.S. Census.

reasonable opportunity to provide meaningful input on a decision that will disproportionately affect them.

A recent analysis by the FracTracker Alliance highlights the disparate impact of expanded oil and gas development in Kern County on low income, already over-burdened, Hispanic, and linguistically isolated residents. For example, from 2015 through May 18, 2020, the California Geologic Energy Management Division (or CalGEM) issued 18,356 drilling and reworking permits for operations in Kern County; remarkably, 17,978 of these permits (97.9 percent) were issued in census block groups where the median income was at least 20% lower than that of the County as a whole.⁵ These same areas are already disproportionately harmed by pollution: 18,298 of the permits (99.7 percent) were issued in census blocks designated “as the above the 60th percentile of those suffering from existing pollution burden by CalEnviroScreen 3.0.”⁶

New oil and gas development in Kern County also disproportionately affects and harms linguistically isolated and Hispanic community members. As explained by FracTracker:

[T]he majority of Kern County ranks high in “linguistic isolation” according to CalEnviroScreen 3.0. Our analysis shows that 11,244 permits [of 18,356] were issued in block groups that CalEnviroScreen 3.0 has ranked in the top 60th percentile for linguistic isolation. A total 16,143 permits were issued in block groups that are 40% or more Hispanic, and that number increases to 18,000 (98.1%) permits if you include the permits issued in the Midway-Sunset Field, located on the border of one of Kern’s largest, and predominantly “Hispanic,” census block groups.⁷

In light of this heavy and disproportionate burden on linguistically isolated and Hispanic residents, the County can and must take immediate steps to make the public process for the Ordinance accessible in Spanish.

The pronounced burden on low-income, linguistically isolated, Hispanic communities means that, conversely, very few permits for new oil and gas development have been issued since 2015 in census blocks that are predominantly white, with median incomes above the median, and with low rankings of linguistic isolation. In other words, reflecting systemic racism, Kern County’s low-income, Spanish-speaking, Hispanic communities have become “sacrifice zones” that are forced to bear the burden of pollution from the County’s oil and gas industry. The County’s practices—reflected in its administration of the 2015 Ordinance, which it is proposing for re-adoption—run afoul of California’s anti-discrimination statute. Government Code section 11135 prohibits recipients of state funds (like the County) from intentional or unintentional discrimination on the basis of race, color, or national origin. Further, implementing regulations specify that “discrimination” includes practices that result in disparate impacts, and prohibit

⁵ Kyle Ferrar, MPH, “Systematic Racism in Kern County Oil and Gas Permitting Ordinance” (June 8, 2020), <https://www.fractracker.org/2020/06/systematic-racism-in-kern-county-oil-and-gas-permitting-ordinance/>.

⁶ *Id.*

⁷ *Id.*

practices that “utilize criteria or methods of administration that[] have the purpose or effect of subjecting a person to discrimination.”⁸ The County must address this discrimination and should not adopt an ordinance and SREIR that perpetuates it.

II. The Draft SREIR May Not Evade Evaluation of Oil and Gas Impacts by Relying on Ecological Harm Caused by Livestock Grazing.

The Draft SREIR cites a Center for Biological Diversity (Center) webpage explaining the ecological harm caused by livestock grazing. Draft SREIR at 4.2-24. The Draft SREIR attempts to use these significant impacts to avoid an evaluation of oil and gas impacts. While the Center’s comments pertain to converting natural habitat to grazing land, the Draft SREIR attempts to use this real concern and misapply it to converting grazing land into oil and gas development. As our comment letters have discussed, oil and gas activities are harmful to biological resources.⁹ Depending on the species in question, oil and gas may be more harmful or have different impacts than grazing. In any event, it is improper to foreclose analysis of the impacts of oil and gas that happen to displace grazing land.

III. The Draft SREIR Fails to Consider Evidence Showing Flaws in the San Joaquin Valley’s Emission Reduction Credit Program.

The Draft SREIR recognizes that emissions caused by the Ordinance from permitted sources would exceed applicable significance thresholds for air quality. *E.g.*, Draft SREIR at 4.3-86, 4.3-94. “The annual contribution [from permitted stationary equipment] of PM₁₀ and PM_{2.5} would be almost 30 times the threshold. The emissions of ozone precursors (NO_x, VOC, and CO) would exceed their respective thresholds: NO_x would be almost 50 times the threshold, VOC more than 170 times the threshold, and CO more than eight times the threshold.” *Id.* at 4.3-94. The Draft SREIR also concludes the Ordinance will result in significant and unavoidable cumulative impacts on greenhouse gas emissions, even with mitigation measures in place. *Id.* at 4.18-35. In both contexts, however, the Draft SREIR reasons that because any increases would be offset, there would be no net increase in emissions. *Id.* at 4.3-94, 4.18-36.

One method by which these emissions may be offset is through the San Joaquin Valley Air Pollution Control District (SJVAPCD or the District)’s Emission Reduction Credit (ERC) Program. The Draft SREIR relies on use of ERC Program credits explicitly with regard to emissions impacting air quality. *Id.* at 4.3-86, 4.3-93. And the Draft SREIR appears as though it may also intend to rely on use of ERC Program credits for greenhouse gas offsets. *See id.* at 4.18-36.

⁸ Cal. Code Regs., tit. 2, § 11154, subd. (i).

⁹ *See, e.g.*, September 16 Letter, section IX.B.4; Letter from Petra Pless, D.Env. to Will Rostov, *Re: Review of Final Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C), Focused on Oil and Gas Local Permitting*, SCH# 2013081079, at pp. 25-27 (Nov. 9, 2015) (AR159196-98); Letter from Hollin Kretzmann to Christopher B. Mynk, AICP, *Re: Comments on the Draft Environmental Impact Report for Revisions to the Kern County Zoning Ordinance 2015 C*, at pp. 18-30 (Sept. 11, 2015) (AR010365-77).

Pursuant to the ERC Program, credits may be awarded to facilities in certain circumstances where the facility voluntarily reduces air emissions in excess of reductions required by law.¹⁰ The credits are then “banked” by the District and can be used later by the facility to allow new pollution, or sold to other companies to offset their pollution.¹¹ In order to receive credit for reductions, the facility must timely file its credit banking application and the facility must prove that the pollution reduction is permanent, enforceable, and surplus to pollution reductions already required by law.¹² Because SJVAPCD’s accounting differs from that used by the federal government, SJVAPCD is required to demonstrate its compliance by showing “equivalency” in emission reductions.¹³

The Draft SREIR assumes ERCs purchased through this program will offset emissions and contribute to preventing any net increase of emissions. Draft SREIR at 4.3-93, 4.18-36.¹⁴ Recent evidence demonstrates, however, that many offsets obtained pursuant to this program may be invalid or over-credited.

In June 2020, the California Air Resources Board (CARB) released a report containing findings from an audit of the ERC Program.¹⁵ This audit reviewed 52 ERC projects for their compliance with SJVAPCD rules and federal and state requirements.¹⁶ The audit demonstrates that credits were overvalued and issued under circumstances that do not meet legal requirements.¹⁷ CARB’s report contained the following findings, among others:

- “In about half of (27 of 52) ERC projects reviewed, the District’s project files lacked sufficient supporting documentation that would be necessary to replicate or verify the information used in the District evaluation or provided in the facility application.”¹⁸
- “In 15 of the 52 projects reviewed, the District granted ERCs for reductions generated by a facility shutdown that occurred more than 180 days before submission of the ERC application” in violation of SJVAPCD’s banking rule.¹⁹

¹⁰ Steinzor, Nadia and Baizel, Bruce, “Undeserved Credit,” Earthworks, at p. 5 (Nov. 2018), <https://www.earthworks.org/publications/undeserved-credit-why-emissions-banking-in-californias-san-joaquin-valley-puts-air-quality-at-risk/>.

¹¹ *Id.* at pp. 4-5

¹² *Id.* at p. 6.

¹³ *Id.* at p. 7.

¹⁴ *See also, e.g.*, 2015 Final EIR, section 7.2.4 (AR010646) (“The County assumes that SJVAPCD will enforce its own rules and regulations, and thus will assure that any offsets or credits used to satisfy Rule 2201 meet these requirements.”).

¹⁵ Enforcement Division, California Air Resources Board, “Review of the San Joaquin Valley Air Pollution Control District Emission Reduction Credit System” (June 2020), https://ww2.arb.ca.gov/sites/default/files/2020-06/SJV_ERC_FINAL_20200604.pdf (CARB Audit Report).

¹⁶ *Id.* at pp. 22-32.

¹⁷ Letter from Catherine Garoupa White et al. to Mary Nichols et al., “RE: CARB Enforcement Division’s Review of the San Joaquin Valley Air Pollution Control District’s Emission Reduction Credit Program,” at pp. 2-3 (June 25, 2020) (CVAQ Letter).

¹⁸ CARB Audit Report, at p. 25.

¹⁹ *Id.* at p. 26.

- “In 10 projects . . . the reductions may not have been real and permanent as the pollution activity and emissions may have shifted to a different facility.”²⁰
- “In four of the 52 ERC applications reviewed . . . , it is unclear whether a portion of the reductions issued an ERC were not surplus,” or in excess of emissions reduction that is otherwise required through existing regulations or in a state implementation plan, as is legally required.²¹

The audit further analyzed the federal offset equivalency demonstration.²² This analysis revealed a similar pattern of overvaluing emission reductions and failing to retain documentation adequate for meaningful review.²³ The audit report contained the following findings, among others:

- “The District’s equivalency database is not a self-contained, relational database and lacks a complete data dictionary and technical documentation. CARB staff noted a number of stranded records, data-handling discrepancies, and transparency concerns related to these issues.”²⁴
- SJVAPCD over-credited the amount of emission reductions claimed for equivalency from certain projects, including Agricultural Internal Combustion Engine (AG-ICE) incentive program electrification projects and orphan shutdowns (operations that cease and no entity applied for credits).²⁵
- SJVAPCD relied on projects that that may not have been appropriate for use in the equivalency determination.²⁶
- SJVAPCD incorporated emission reductions that may not have met the enforceability and permanence criteria required by law.²⁷

These systemic issues with the program impacted types of projects—including orphan shutdowns and electrification projects generated through the AG-ICE incentive program—on which SJVAPCD has “heavily relied” to demonstrate equivalency,²⁸ and the relatively narrow scope of the audit suggests the results are only the tip of the iceberg.²⁹

²⁰ *Id.* at p. 28.

²¹ *Id.* at p. 30.

²² *Id.* at pp. 33-59.

²³ CVAQ Letter, at pp. 3-6.

²⁴ CARB Audit Report, at p. 33.

²⁵ *Id.* at pp. 33-34.

²⁶ *Id.* at p. 33.

²⁷ *Ibid.*

²⁸ *Id.* at pp. 63-64; *see also id.* at p. 19 (“[B]etween 2010 and 2018, half of all VOC reductions, and 75% of all NOx reductions included in the District’s equivalency demonstrations were provided by orphan shutdowns and electrification projects . . .”).

²⁹ CVAQ Letter, at p. 4.

In response to the significant concerns raised in the report, SJVAPCD's Governing Board took action on September 17, 2020 to "[p]rovisionally remove all emission reductions from Ag-ICE and orphan shutdown projects from the equivalency system."³⁰ SJVAPCD is currently considering next steps.³¹

In light of the status of the ERC Program, the County's facile assumption that use of this program will effectively mitigate emissions is unwarranted. The County must analyze the CARB audit report and related documents and consider their impact on the Draft SREIR's air quality and greenhouse gas analyses.

IV. The County Proposed Arbitrary, Inconsistent, and Unenforceable Setback Requirements in the Proposed Ordinance and the Draft SREIR.

A lead agency must evaluate and disclose the exposure of "sensitive receptors" to "substantial pollutant concentrations" in addition to its general duty to analyze and discuss health and safety impacts that may result from the project.³² A memorandum from the Office of the Attorney General emphasizes that "[a] lead agency therefore should take special care to determine whether the project will expose 'sensitive receptors' to pollution; if it will, the impacts of that pollution are more likely to be significant."³³ Where a project's health impacts are significant, the lead agency must disclose both the nature and the magnitude of the impacts on the affected community or communities.³⁴

The memorandum from the Office of the Attorney General also provides: "[w]here a lead agency has determined that a project may cause significant impacts to a particular community or sensitive subgroup, the alternative and mitigation analyses should address ways to reduce or eliminate the project's impacts to that community or subgroup."³⁵ Feasible alternatives and mitigation measures may include alternative project locations or changes to a project's scope or design that could reduce or eliminate the effects of the project on the affected community.³⁶

³⁰ San Joaquin Valley Air Pollution Control District, "Emission Reduction Credit Program Public Advisory Workgroup Kick-Off Meeting," at p. 6 (September 18, 2020), https://valleyair.org/Workshops/postings/2020/09-18-20_ERC/presentation.pdf.

³¹ *Ibid.*

³² CEQA Guidelines, App. G; *see also* *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 522 (citing CEQA Guidelines § 15126.2(a)).

³³ State of California Department of Justice, Office of the Attorney General, "Environmental Justice at the Local and Regional Level - Legal Background," at p. 3 (July 10, 2012) (Attorney General Environmental Justice Memo) (internal citation omitted), https://oag.ca.gov/sites/all/files/agweb/pdfs/environment/ej_fact_sheet.pdf.

³⁴ *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 519-23 (emphasizing that "a sufficient discussion of significant impacts requires not merely a determination of whether an impact is significant, but some effort to explain the nature and magnitude of the impact").

³⁵ Attorney General Environmental Justice Memo at p. 4 (citing CEQA Guidelines § 15041(a)).

³⁶ *Id.* at pp. 4-5 (citing *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 404; *Citizens of Goleta Valley v. Board of Supervisors* (1988) 197 Cal.App.3d 1167, 1183).

In the Ordinance and Draft SREIR, the County proposes to institute minimum setback distances between oil and gas wells and (1) highways; (2) certain buildings and facilities; and (3) “sensitive receptors,” which the County defines as a “single or multi-family dwelling unit, place of public assembly, institution, school or hospital.” *See* Ordinance § 19.98.060(A); Draft SREIR at 4.3-136 to 4.3-137 (Mitigation Measure 4.3-5); 4.12-36 to 4.12-38 (Mitigation Measures 4.12-1 and 4.12-2).

The setback distances proposed in the Draft SREIR are inadequate and unlawful for the myriad reasons described below. Most fundamentally, they are based on minimal and flawed analysis, which fails to consider the growing body of scientific evidence on the risks and impacts that oil and gas drilling operations pose on the environment and human health. As discussed in depth in section VIII.A of the September 16 Letter, a large body of science makes clear that 2,500 feet is the minimum necessary setback distance to protect sensitive receptors from the multiple risks associated with proximity to oil and gas upstream development activities.

A. Setback Distances Established by the Ordinance Are Unsupported and Inadequate.

Section 19.98.060 of the proposed Ordinance would establish certain “implementation standards and conditions” for all oil and gas exploration and production activities. With respect to setback distances from other land uses, section 19.98.060(A) states:

No oil or gas well shall be drilled within:

1. One hundred (100) feet of any public Major or Secondary highway or building not necessary to the operation of the well;
2. Two hundred and ten (210) feet of any sensitive receptor (single or multi-family dwelling unit, place of public assembly, institution, school or hospital); or
3. One hundred (100) feet of any building utilized for commercial purposes, not used for oil and gas operations.

Draft SRIER, Vol. 1, Chapter 1, Attachment A at 7. This proposal differs from the setback distances that preceded the 2015 Ordinance. In particular, section 19.98.050 of the predecessor (and now current) Zoning Ordinance (Title 19) states:

No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred and fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution, or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

See Draft SRIER, Vol. 1, Chapter 1, Attachment A at 27; *accord id.* at 3-15 to 3-18. Under the current Zoning Ordinance, these same setbacks also apply within “Drilling Island” (DI) specialty districts and, within “Petroleum Extraction” (PE) districts,” oil and gas wells must be located more than 300 feet from all existing dwellings and most existing commercial buildings—though

it appears the Draft SREIR summarizes these requirements incorrectly. *Compare id.*, Vol. 1, Chapter 1, Attachment A at 30 (showing redline of existing section 19.48.130 for DI District) and 34 (showing redline of existing section 19.66.020(A) for PE District) with *id.* at 3-16 to 17 (Table 3-3, summarizing zoning provisions). Thus, the proposed 210-foot setback is less stringent than what is required under current law.

The setback distances proposed under section 19.98.060(A) are not based on substantial evidence.

First, nothing in the Draft SREIR explains the basis for these proposed distances, let alone supports their adoption. The Draft SREIR mentions that oil-industry sponsors of the Ordinance—back in 2013—proposed certain setbacks as “best management practices” (*id.* at 3-78), but neither the origin nor basis for those numbers is explained and the text of the proposed Ordinance does not adhere to the industry proposal except for the minimum setback distance for highways. The Draft SREIR also briefly discusses the setbacks established by the current Zoning Ordinance, but merely notes that they are insufficient to protect sensitive receptors from construction noise. *Id.* at 4.12-30 (“If oil and gas activities were to occur within 150 feet of a residence or 300 feet of a place of assembly, construction noise levels could exceed audible levels if construction were to occur outside of the 6:00 a.m. to 9:00 p.m. framework”). The setbacks in the proposed Ordinance, however, would not address this inadequacy since the County’s proposal of a 210-foot setback between wells and public places of assembly is even smaller than what is currently in law.

A comparison of the current Zoning Ordinance and proposed Ordinance highlights a second failure of the Draft SREIR: nothing in the Draft SREIR explains—let alone supports—the County’s proposal to change the Ordinance from what was adopted previously. In particular, the Draft SREIR neglects to discuss why the County is proposing to *decrease* the setback distance for sensitive receptors such as places of public assembly, schools, and hospitals from 300 feet to 210 feet, or how this would alter the health and safety risks that wells would impose on sensitive receptors. Similarly, the Draft SREIR neglects to discuss why the County is proposing to decrease the setback distance between oil and gas wells and existing residences from 300 feet to 210 feet for wells proposed in a PE or DI specialty district.

Finally and most importantly, the Draft SREIR fails to and must consider the substantial body of scientific evidence demonstrating that a 2,500-foot and other setback distances between wells and sensitive receptors will minimize or substantially lessen the impacts of oil and gas activities and sensitive receptors. We previously discussed these studies in detail in section VIII.A of the September 16 Letter.

B. Setback Distances Established by Mitigation Measure 4.3-5 Are Unsupported and Inadequate.

The Draft SREIR sets forth setback distances in Mitigation Measure 4.3-5 to reduce exposing sensitive receptors to the substantial concentrations of air pollution that would occur under the Ordinance (i.e., Impact 4.3-3). Draft SREIR at 1-42, 4.3-136 to 4.3-137. Even with the

implementation of Mitigation Measure 4.3-5, the Draft SREIR concludes that this impact will still be significant and unavoidable. *Id.* at 4.3-137.

Under Mitigation Measure 4.3-5, an applicant must provide a “Site Vicinity Figure showing the location of any sensitive receptor(s) within 3,000 feet of the construction site (impact area) for the proposed new well or other ancillary facility or equipment (excluding pipelines).” Draft SREIR at 4.3-136. If any sensitive receptors are present within that impact area, “then additional information must be provided” showing the well is set back at the specified distances from the nearest sensitive receptor, depending on the area of the County and well depth. *Id.* In the Western and Central Subareas delineated by the Draft SREIR, wells from 5,000 to 9,999 feet in depth are subject to a minimum setback of 116 feet from sensitive receptors; wells 10,000 feet deep or more are subject to a bigger setback distance of 367 feet. *Id.* at 1-42, 4.3-136. In the Eastern Subarea, wells that are 10,000 feet deep or more only have to meet a 296-foot minimum setback; the Draft SREIR does not propose any setback for wells less than 10,000 feet in depth. *Id.* at 1-42, 4.3-136.

The setback distances proposed under Mitigation Measure 4.3-5 are not based on substantial evidence. The County appears to rely solely on the flawed, single-well health risk assessment conducted in June 2015 (June 2015 single-well HRA) to determine these distances. Draft SREIR at 4.3-127. This health risk assessment is not credible and likely significantly understates the risk to sensitive receptors.³⁷ But even if the June 2015 single-well HRA were credible (it is not), the Draft SREIR ignores its conclusion that, when air pollution concentrations are estimated for a well *and* related oil processing equipment (including oil tanks, a truck loading rack, an underground sump, a flare, and fugitive volatile organic compounds), larger minimum setbacks are needed to avoid exceeding a cancer risk of 10 in one million. Draft SREIR at 4.3-128, 4.3-129 (Table 4.3-35b). The minimum setback distances in Mitigation Measure 4.3-5 are also contradicted by the Draft SREIR’s statement that “cancer risk levels exceed thresholds at locations where receptors are located closer than 200 meters [656 feet] from a well.” *Id.* at 4.3-134. And these proposed distances are also inconsistent with a large and growing body of peer-reviewed scientific evidence showing much greater distances are needed to protect public health, which the County completely disregards—as discussed in the September 16 Letter.

Even if one were to accept the County’s flawed and inadequate health risk assessments, Mitigation Measure 4.3-5 still fails to meet CEQA’s requirements. According to the Draft SREIR, “the cancer risk from all oil processing equipment would exceed 10 in one million from the fenceline to 295 to 701 feet, depending on the Subarea and HRA assumptions.” *Id.* at 4.3-131. Mitigation Measure 4.3-5, however, only focuses on the risk presented by a single well and is not intended to address the entirety of the cancer risk posed by the Ordinance. According to the Draft SREIR:

The oil processing equipment would require operating permits from the SJVAPCD (except possibly the loading rack for which there may be a Rule 2020 Exemption) and, as such, total risk from the facility would be modeled at that time. Emissions

³⁷ See generally Report on Final Environmental Impact Report for Revisions to the Kern County Zoning Ordinance - 2015(C) (Focused on Oil and Gas Local Permitting) prepared by Phyllis Fox, Ph.D., PE at pp. 56-73 (AR155664-81).

and risk from any future proposed facilities would be required to meet the Air District's risk threshold which is currently 10 in one million. Therefore, impacts would be significant.

Id.

In other words, the Draft SREIR merely assumes that the District will itself re-model total facility risk at some point in the future, and institute controls or mitigation—even though the County is aware of the risks now and could institute setbacks that account for the cumulative risks and establish protective buffers for other equipment. The County's approach is unlawful for several reasons. First, because the Draft SREIR concedes that the Ordinance will result in significant health impacts, the County must adopt all feasible mitigation; setbacks that account for total facility risk—and that establish protective distances from both wells and other pollution-emitting equipment—are practical and feasible and nothing in the Draft SREIR says or suggests otherwise. Second, the County should not and cannot defer mitigation until future permitting processes by the District when the Draft SREIR has already characterized the risk and the County possesses the authority to mitigate it—there is no reason to postpone mitigation in this way. Third, the County cannot abdicate its authority to the District in the manner it proposes. As the lead agency, the County “shall be responsible for considering the effects . . . of *all activities involved in a project*.”³⁸ As a responsible agency, the District is responsible for “considering only the effects of those activities involved in a project which it is required by law to carry out or approve.”³⁹ Consequently, the District would seem to lack the County's full authority to analyze and mitigate total facility risks—i.e., authority to address risks from both permitted and unpermitted emissions. *See* Draft SREIR at 4.3-65, 4.3-68, 4.3-72, 4.3-93 to 4.3-94.

Mitigation Measure 4.3-5 is also deficient because it is unclear how, as a practical matter, the County will implement and enforce the measure. For setbacks to be effective, it is crucial that sensitive receptors are accurately identified and mapped, and that oil and gas sites are monitored to ensure that equipment and activities do not encroach into the protective buffer. The County should clarify how it would ensure that applicants comply with the setback requirements, for instance through Google Maps assessments and on-site inspections prior to and after it issues a permit.

Ultimately, it is clear that the County must consider establishing a setback distance of 2,500 feet in order to minimize or substantially lessen the significant health and safety risks that oil and gas activities would pose to sensitive receptors. A lead agency must consider all feasible mitigation measures.⁴⁰ As we noted in section VIII.A of the September 16 Letter, numerous scientific studies demonstrate that locating oil and gas wells and related activities within 2,500 feet from sensitive receptors is likely to expose sensitive receptors to significant air pollution concentrations.

³⁸ Pub. Resources Code § 21002.1(d) (emphasis added); *see also* CEQA Guidelines § 15041(a).

³⁹ Pub. Resources Code § 21002.1(d); *see also* CEQA Guidelines § 15041(b).

⁴⁰ Pub. Resources Code §§ 21002.1(b), 21100(b)(3); CEQA Guidelines § 15126.4(a)(1); *Mountain Lion Foundation v. Fish and Game Commission* (1997) 16 Cal.4th 105, 134.

Not only does the Draft SREIR ignore studies that show a far greater cancer risk than the County's risk benchmark of 10 in one million, at greater distances from the well site,⁴¹ it also ignores studies that demonstrate a myriad other risk associations. For example, the Draft SREIR cursorily references studies pertaining to birth outcomes, but specifically looks at only one such study, and misinterprets it. Draft SREIR at 4.3-134 to 4.3-135. The County states that the cited study, Gonzalez et al. (2020),⁴² did not "account for other contributors to preterm birth besides air pollution (such as prenatal care)." Draft SREIR 4.3-135. However, Gonzalez et al. (2020) specifically states that it fit models adjusted for prenatal care as a variable.⁴³ The Draft SREIR also asserts that the study was "not able to account for other sources of ambient air pollution in the study region" (*id.* at 4.3-135), but Gonzalez et al. (2020) was not *designed* to identify the source of the association at all. The Draft SREIR sites one meta-study concerning birth outcomes (*id.* at 4.3-135), but ignores the raft of other meta-studies demonstrating the risks associated with proximity to production activity; and makes no effort to draw a risk conclusion based on the limited data it does cite.

Consistent with the strong and ever-growing body of science on the harmful health effects of upstream oil and gas development, much larger setbacks than those proposed in Mitigation Measure 4.3-5 are commonplace in other jurisdictions where such upstream oil and gas development activities occur. Appended to these comments as Addendum A is a list of setbacks adopted by other jurisdictions.

C. Setback Distances Established by Mitigation Measure 4.12-1 Are Unsupported and Inadequate.

The County has determined that temporary noise impacts from oil and gas well construction activities are significant and unavoidable. Draft SREIR at 4.12-30. To make this determination, the Draft SREIR states that noise effects are "considered significant if any of the following" occur: (1) the noise from activities authorized by the Ordinance exceeds 65 decibels (dB) at the property line of a sensitive receptor; (2) where the existing ambient noise level is below 65 dB, the noise results in a greater than 5 dB increase; or (3) where the existing ambient noise level is at or above 65 dB, the noise causes a greater than 1 dB increase. *Id.* at 4.12-24. These same three criteria have also been incorporated into Mitigation Measure 4.12-1 as the "Noise Standard." Mitigation Measure 4.12-1 establishes setbacks from sensitive receptors; if the setbacks cannot be met, an applicant must employ noise reduction measures sufficient to avoid exceeding the three thresholds.

⁴¹ See, e.g., McKenzie, L.M., Blair, B.D., Hughes, J., Allshouse, W.B., Blake, N., Helmig, D., Milmoie, P., Halliday, H., Blake, D.R., Adgate, J.L. (2018). Ambient Non-Methane Hydrocarbon Levels Along Colorado's Northern Front Range: Acute and Chronic Health Risks. *Environmental Science & Technology*. <https://doi.org/10.1021/acs.est.7b05983>.

⁴² Gonzalez, D.J.X., Sherris, A.R., Yang, W., Stevenson, D.K., Padula, A.M., Baiocchi, M., Burkee, M., Cullen, M.R., Shaw, G.M. (2020). Oil and gas production and spontaneous preterm birth in the San Joaquin Valley, CA. *Environmental Epidemiology*, 4(4). https://journals.lww.com/environepidem/Fulltext/2020/08000/Oil_and_gas_production_and_spontaneous_preterm.1.aspx?context=LatestArticles.

⁴³ *Id.*

1. *The Draft SREIR's Thresholds of Significance for Noise and its Noise Standard Are Ambiguous.*

The Draft SREIR does not specify whether or not the noise thresholds of significance and/or the Noise Standard are based on average day-night level (DNL) or community noise equivalent level (CNEL), although it appears that the Noise Standard is based on either or both measurement standards. *See id.* at 4.12-3, 4.12-23. This detail must be clarified both to make sure that the public and decision makers are fully and accurately informed by the SREIR's analysis and to ensure that Mitigation Measure 4.12-1 is enforceable.

2. *The Draft SREIR's Analysis of Noise Impacts Is Inadequate.*

Under CEQA, a lead agency must make “a reasoned and good faith effort to inform decisionmakers and the public” about a project’s potential impacts.⁴⁴ In particular, a lead agency must clearly identify and describe significant direct and indirect environmental impacts both short-term and long-term, and health and safety impacts resulting from environmental impacts.⁴⁵ And this analysis must address all phases of a project.⁴⁶

Unfortunately, the Draft SREIR’s analysis is incomplete: it fails to consider hourly impacts; it ignores the impacts on noise levels experienced indoors; it does not analyze noise impacts from the multiple activities that this Ordinance would allow to simultaneously take place next to one another; and it neglects to address well decommissioning and abandonment.

The thresholds of significance that the Draft SREIR uses to analyze noise impacts (and the related Noise Standard) differ from the analytical thresholds recommended in the “Environmental Noise Assessment Noise Study Technical Report” prepared by Brown-Buntin Associates, Inc. in 2015 (the 2015 Noise Assessment). Draft SREIR at 4.12-1. In particular, the 2015 Noise Assessment states:

The precedent for using cumulative noise exposure metrics such as the [average day-night level or] DNL and [community noise equivalent level or] CNEL has been well established for land use compatibility planning purposes. However, from a CEQA standpoint, it has been successfully argued that *the DNL or CNEL do not by themselves adequately define the potential noise impacts resulting from intermittent sources of noise that may occur at different times of the day or night. For that reason, hourly noise level standards are recommended* to determine if a project-related activity will result in a significant impact and the need for noise mitigation.

2015 Final EIR, Appendix V, at 14 (AR006730) (emphasis added). Yet inexplicably, the County completely ignores this analytical requirement. Hourly standards should be used to evaluate

⁴⁴ CEQA Guidelines § 15151; *Berkeley Keep Jets Over the Bay Com. v. Bd. Of Port Comm'rs* (2001) 91 Cal.App.4th 1344, 1367.

⁴⁵ CEQA Guidelines § 15126.2(a) & (c); CEQA Guidelines, App. G.

⁴⁶ CEQA Guidelines § 15126 (“All phases of a project must be considered when evaluating its impact on the environment”).

impacts as specified under the 2015 Noise Assessment—and they should be incorporated into the Draft SREIR’s mitigation measures as well.

Similarly, the County does not even attempt to—but must—analyze noise impacts on indoor noise levels. Various policies and implementation measures in the current Kern County and metropolitan Bakersfield general plans already have established an indoor noise threshold of at 45 dB. *See, e.g.*, Draft SREIR at 4.12-12 to 4.12-13; 4.12-15 to 4.12-16; 4.12-23; 2015 Final EIR, Appendix V, at 3-5, 14 (AR006719-21, AR006730). The County must address whether the Ordinance is consistent with these local plans, whether indoor noise impacts otherwise are significant and, if so, must adopt all feasible mitigation.

The Draft SREIR also is deficient because it does not analyze (or mitigate) the noise impacts that would result from the occurrence of construction activities at more than one site. According to the Draft SREIR: “[a]lthough construction activities for a particular well, group of wells, or storage tank area may be temporary and somewhat brief (i.e., on the order of several weeks to several months), staggered development of multiple wells or other oil and gas facilities within a particular area could occur over the course of several years.” Draft SREIR at 4.12-21. Beyond this durational concern, the Draft SREIR does not discuss the additive impacts of more than one activity taking place simultaneously in close physical proximity. The County’s 2015 Noise Assessment specifically cautioned that it “does not address the additive nature of multiple noise sources,” and advised that protective setback distances would need to increase if more than one activity occurred in close proximity (e.g., if well workover also occurred near a well that is being drilled). 2015 Final EIR, Appendix V, at 17 (AR006733). The County’s failure to address successive noisy activities and activities from multiple nearby sites is inexcusable, as the Ordinance authorizes decades of future development and communities often live next to tens to thousands of wells, where any given number of wells are being constructed, reworked, stimulated, or operated.⁴⁷

Finally, the Draft SREIR also fails to analyze (or mitigate) other noise impacts that it has admitted are significant. More specifically, the Draft SREIR acknowledges that “[w]ell plugging, abandonment, and decommissioning activities . . . would be similar to, and therefore have been determined to, produce noise levels that are equivalent to or less than construction-phase activities.” Draft SREIR at 4.12-20. Yet these activities are not discussed further, nor are they addressed by a mitigation measure.

3. *The Setback Distances Proposed Under Mitigation Measure 4.12-1 Are Inconsistent with or Contradict Other Findings in the Draft SREIR.*

The Draft SREIR proposes Mitigation Measure 4.12-1 to mitigate construction noise impacts. It establishes setback distances between certain construction activities and any sensitive receptors as follows: 1,550 feet for drilling (well advancement); 820 feet for drilling (pull out of well/borehole); 3,270 feet for large scale exploratory drilling; 930 feet for well workover; and 1,090 feet for hydraulic fracturing. Draft SREIR at 4.12-37. Pursuant to Mitigation Measure

⁴⁷ Kyle Ferrar, MPH, “Recommendations for an EIR to Prioritize Kern County Frontline Community,” (Sept. 16, 2020), <https://www.fractracker.org/2020/09/kern-eir-ej/> (the communities of Lost Hills, Bakersfield, and Taft are near or surrounded by thousands of wells).

4.12-1, if a sensitive receptor is located within an applicable setback distance, then “the activity location must either be relocated to achieve the setback or a Site Vicinity Map and mandatory noise reduction measures will be required in order to achieve the Noise Standard.” *Id.* at 4.12-36.

Unfortunately, the Draft SREIR does not clearly explain the basis for the setback distances proposed under Mitigation Measure 4.12-1. For example, the setback distances proposed under Mitigation Measure 4.12-1 are different from the construction noise contour distances calculated in the 2015 Noise Assessment. 2015 Final EIR, Appendix V, at 17 (AR006733) (Table X) (summarizing the distance from each oil and gas activity assessed to the 50, 55, and 60 dB contours). The County does not explain how it arrived at the setback distances proposed against its stated threshold of 65 dB DNL/CNEB.

Even more concerning, the setback distance proposed for hydraulic fracturing (1090 feet) does not appear to be consistent with related distances discussed elsewhere in the Draft SREIR. Although the Draft SREIR concludes that noise levels from hydraulic fracturing would still produce 67-72 dBA (A-weighted decibel) of noise (exceeding EPA’s outdoor recommended noise limit of 55 dBA) at 2,000 feet away from the drill site (*see* Draft SREIR at 4.12-27 (Table 4.12-11), it does not propose 2,000 feet as the setback distance in Mitigation Measure 4.12-1, or explain why this distance is not feasible. The Draft SREIR also concludes that hydraulic fracturing will result in 69-74 dBA noise impact at 1,500 feet (and 73-78 dBA impact at 1,000 feet). *Id.* at 4.12-27. Despite knowing that hydraulic fracturing would still impose significant noise impacts even if it is located 1,500 feet away from a sensitive receptor, the County inexplicably proposes the even closer 1,090 feet setback distance between fracking wells and sensitive receptors in Mitigation Measure 4.12-1. *Id.* at 4.12-37; *see also id.* at 4.12-25 (Table 4.12-8 also provides that even if sensitive receptors are 1,760 feet from hydraulic fracturing/well stimulation activities, they would still be exposed to 60 dB of related construction noise).

The County should update its analysis of the proposed Ordinance’s noise impacts and increase the setback requirements in Mitigation Measure 4.12-1. As part of this further analysis, it must also take into consideration recent studies demonstrating that a 2,500-foot setback is necessary to reduce the multiple risks and impacts of oil and gas drilling activities near sensitive receptors.

4. Mitigation Measure 4.12-1 Should Be Clarified to Ensure Compliance.

The Draft SREIR fails to provide clear direction to applicants regarding within what distance(s) from a well sensitive receptors need to be mapped. Confusingly, the County tells applicants to map sensitive receptors “within the distance shown for the specific activity” and also “in no case more than 3,270 feet.” Draft SREIR at 4.13-37. Sensitive receptors will not be protected if they are not thoroughly and accurately mapped. To eliminate any confusion and the potential oversight of sensitive receptors, the County should clarify that all applicants must map the location of any and all sensitive receptors within 3,270 feet from a proposed well (of any depth) and/or ancillary equipment. Further, the County must ensure the accuracy of the all applicant submission through use of Google Earth and the performance of on-site inspections prior to and after issuance of a permit.

D. Setback Distances Established by Mitigation Measure 4.12-2 Are Unsupported and Inadequate.

The Draft SREIR also proposes setback distances under Mitigation Measure 4.12-2 to reduce noise impacts from oil and gas operational activities on sensitive receptors. For instance, Mitigation Measure 4.12-2 proposes a setback distance of only 210 feet between new oil and gas wells and a sensitive receptor. Draft SREIR at 4.12-36. However, this distance is much shorter than any of the distances proposed to mitigate *construction* noise impacts proposed under Mitigation Measure 4.12-1, and nowhere does the County explain the difference. The Draft SREIR suggests that there should be no difference, since many construction activities are also considered operational activities as well. *See id.* at 3-1 (the proposed Ordinance intends to address the environmental impacts of pre-drilling exploration, well drilling, and the operation of wells and related activities. Operation includes exploration, production, completion, stimulation, re-working, monitoring, and plugging and abandonment).

E. The County Also Fails to and Must Explain How the Setback Distances Proposed Under the Ordinance, Mitigation Measure 4.3-5, and Mitigation Measure 4.12-1 Would Be Applied in a Consistent and Clear Manner.

The Ordinance and Draft SREIR propose several different setbacks, and the County fails to explain how each applicant is expected to comply with the combination of different distances—which are also expressed inconsistently. The County’s failure to explain how the setbacks apply and interrelate requires the County to exercise discretion without any requirement for consistency, creates confusion that likely will undermine compliance, and may preclude enforcement.

As an initial matter, the County fails to specify the relevant end points for measuring each of the four setback distances in a clear and consistent manner. Mitigation Measure 4.3-5 is the most precise: setback distances are to be calculated from the “closest edge of the well pad to the property line of the nearest sensitive receptor.” Draft SREIR at 4.13-136. Mitigation Measure 4.12-1, specifies that construction noise setbacks are measured from the “exterior wall facing the well pad site of the closest sensitive receptor”—but does not explicitly prescribe an end point at the well site. *Id.* at 4.12-36. For section 19.98.060(A) of the proposed Ordinance and Mitigation Measure 4.12-2, there are no measurement specifications whatsoever.

The variable proposed setback distances also collectively present a logical gap. The County does not explain how a proposed well that must comply with the 210-foot setback distance in section 19.98.060(A) of the Ordinance and Mitigation Measure 4.12-2 should also comply with the 1,550-foot setback distance for drilling (well advancement). Presumably, all oil and gas operators must comply with the largest, most conservative setback explicable. If this is the intention, the County must make this requirement clear and explicit.

In any case, we maintain that all of these setback proposals are deficient for the reasons we provide above and in the September 16 Letter. The County must first fix all of these

deficiencies. Once it does so, the County then must also explain how the different setback proposals should be applied in the context of one another.

V. The Draft SREIR Fails to Implement All Feasible Measures to Mitigate Greenhouse Gas Impacts.

Despite suffering from heatwaves, drought, wildfires, and other extreme weather events caused or exacerbated by climate change since the 2015 Final EIR, the 2020 Draft SREIR changes nothing about its greenhouse gas mitigation measures.

California cannot hope to achieve its greenhouse gas production goals while Kern County continues to produce massive quantities of oil and gas and drill thousands of new wells each year. The County must stop issuing new permits and begin a rapid phase out of oil and gas production to save our communities and environment from catastrophic, irreversible climate change.

In pushing for expediting permitting and expanding oil and gas production, the County has rejected this necessary commonsense approach. It has explicitly rejected alternatives prohibiting new wells or even a cap on the number of total wells allowed.

The mitigation measures are entirely inadequate to offset the greenhouse gas emissions attributable to more than 67,000 new oil and gas wells and other oil and gas activity over the next 20 years. As a preliminary matter, the mitigation measures achieve “no net increase” (Mitigation Measure 4.7-4, Draft SREIR at 4.18-36) in greenhouse gas emissions, but ignore the emissions from combustion, which is omitted from greenhouse gas calculations. CEQA mandates that all direct and indirect impacts be included, so long as they are reasonably foreseeable. Here, combustion is the entire purpose of the production process, an easily foreseeable consequence of oil and gas development.

With no changes made to this section of the SREIR, the greenhouse gas mitigation measures suffer from the same deficiencies as in 2015. Namely, the SREIR still maintains, without support, that the project will result in no net increase of emissions by relying on the cap-and-trade program, and for emissions not covered, offsets from the California Air Pollution Control Officers Association, unnamed “third party greenhouse gas reductions,” or Emission Reduction Agreements. Draft SREIR 4.18-36. Five years after the implementation of the Ordinance, the Draft SREIR still provides no information on what third party offset programs even exist. Nor is there an updated description on what an Emission Reduction Agreement for greenhouse gas would entail or whether a program large enough to handle the volume of such agreements exists. The Draft SREIR also fails to provide evidence that enough credits are available to offset the massive amount of greenhouse gas that this project will generate.

The Draft SREIR’s greenhouse gas analysis is also deficient because it omits a critical piece of information for understanding whether the mitigation measures will work—a record of how these mitigation measures have worked (or not worked) over the last five years. The County should easily be able to provide evidence for its assertion that greenhouse gas emissions have in fact been “net zero” from 2015 to March 25, 2020, when the Ordinance and EIR were

invalidated. During that period, the County issued over 9,000 permits (Draft SREIR 3-2), each directly and indirectly leading to greenhouse gas emissions. A record of compliance with the mitigation measures, or enforcement where operators fail to comply, should be provided to the public for review along with the Draft SREIR. The past five years will also show whether these mitigation measures are implemented in a timely manner or are unlawfully deferred. The Draft SREIR lacks any support for the conclusion that these five-year-old mitigation measures are feasible, effective, or enforceable.

Moreover, the Draft SREIR fails to consider additional feasible mitigation measures that would likely reduce the greenhouse gas emissions of oil and gas development.

For example, the Draft SREIR does not consider mitigating greenhouse gas emissions by oil field. Kern County has some of the most carbon-intensive oil fields in the world.⁴⁸ Considering the per-barrel energy required to produce oil in these fields and the massive quantities produced, the most climate-polluting fields are Midway-Sunset, Kern Front, Kern River, Cymric, South Belridge, McKittrick, Buena Vista, Round Mountain, Mount Poso and Poso Creek.⁴⁹ There is a 60 percent gap between the most and least carbon-intensive oil fields.⁵⁰ The Draft SREIR failed to consider mitigation measures that would restrict production at locations containing the most carbon-intense crude. As discussed previously, the most carbon-intense crude is produced through methods that also generate heightened conventional pollutant impacts and other impacts such as spills.

As described in section IX.B.5 of the September 16 Letter, idle and unattended wells are a significant source of greenhouse gases. Idle wells can leak methane, a potent greenhouse gas, and the longer idle wells are left unattended, the greater the risk that the well will corrode and allow methane to reach the surface. To mitigate this impact, the SREIR must adopt a measure that requires operators to plug and abandon oil and gas wells within a short period of time. In so doing, the County should accelerate remediation and prioritize wells close to sensitive receptors. The state currently has no deadline by which idle wells must be plugged. Thus, there is no state preemption, and regardless, the County may adopt these public health and safety measures under its police power.

In addition, ensuring that operators have sufficient financial resources set aside to plug and abandon their wells will help mitigate greenhouse gas emissions. California Resources Corporation, for example, filed for Chapter 11 bankruptcy in July 2020, leaving questions

⁴⁸ California Air Resources Board, “Calculation of 2019 Crude Average Carbon Intensity Value” (June 15, 2020), https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/crude-oil/2019_crude_average_ci_value_final.pdf.

⁴⁹ Wolf, Shaye and Siegel, Kassie, “Oil Stain, How Dirty Crude Undercuts California’s Climate Progress,” Center for Biological Diversity (Nov. 2017), https://www.biologicaldiversity.org/programs/climate_law_institute/energy_and_global_warming/pdfs/Oil_Stain.pdf.

⁵⁰ Gordon, Deborah and Wojcicki, Samuel, “Need to Know: The Case for Oil Transparency in California,” Carnegie Endowment for Int’l Peace (March 15, 2017), <https://carnegieendowment.org/2017/03/15/need-to-know-case-for-oil-transparency-in-california-pub-68166>.

whether it will be able to pay for the cleanup of its 18,500 wells.⁵¹ The County can mitigate the risk of creating “orphaned” wells—which no operator is able to remediate—by requiring operators to submit a bond that fully covers the cost of well plugging and abandonment and full site remediation.

Mitigating greenhouse gas emissions will also help reduce impacts to biological resources, water quality, and water supply, which are all adversely affected by climate change.

VI. New Reports Reveal the Significant Impacts of Repeated Large-Scale Oil Spills in Kern County.

On September 18, 2020, ProPublica and The Desert Sun published a shocking report on dangerous large-scale spills affecting Kern County.⁵² The report found the following alarming details, which must be examined and addressed in the SREIR:

The report details the magnitude of harm caused by “surface expressions,” spills at the surface caused by oil migrating to the surface, often attributable to enhanced oil recovery techniques such as steam injection. “Hundreds” of onshore spills have occurred in California: “Geysers of oil, rock and mud have shot skyward 100 feet, and slopes have collapsed under smoking waterfalls of crude and wastewater.”⁵³ CalGEM (then-DOGGR) staff also warned that steam injection-induced spills “might never stop” and “will remain a potential threat” without stronger regulation.

Accidents and spills caused by steam injection have been deadly. In 2011, Robert “Dave” Taylor died after falling into a sinkhole of hot oil and hydrogen sulfide that opened up underneath his feet. Air pollutants were released in dangerous volumes: “Failed wellbores [in the Midway-Sunset field] were emitting up to 7,000 parts per million, more than three times the threshold for immediate death.”⁵⁴

Spills have caused significant environmental damage. Aera Energy spilled oil into the Sandy Creek streambed in 1998. The same spill continues 22 years later. In 2010, rains pushed the oil and toxic wastewater through 10 miles of streambed. A scientist from the California Department of Fish and Wildlife was “shocked” after seeing the destruction.⁵⁵ Wildlife that live in burrows near spills are “entombed” by the spilled crude oil.⁵⁶ Endangered species have been found dead near oil spills, and coastal live oaks have been destroyed as part of containment

⁵¹ See September 16 Letter, section IX.A; see also generally Sierra Club, “The Risk of Unplugged Wells for California’s Taxpayers” (2020),

https://www.sierraclub.org/sites/www.sierraclub.org/files/blog/2335%20CRC-Wells_Report_02_high.pdf.

⁵² Wilson, Janet and Younes, Lylla, “Oil Companies Are Profiting From Illegal Spills. And California Lets Them.” ProPublica and The Desert Sun (Sept. 18, 2020), <https://www.propublica.org/article/oil-companies-are-profiting-from-illegal-spills-and-california-lets-them>.

⁵³ *Id.*

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ *Id.*

efforts. Records show “dozens of dead and decaying birds and small mammals around spill sites.”⁵⁷

Many steam injection spills occur in the Midway-Sunset oil field, which has “emitted more greenhouse gases than any oil field in the nation.”⁵⁸

Previously, operators were prohibited from injecting fluids above the fracture gradient of the formation. California Code of Regulations, section 1724.10, subdivision (i) mandated that the “maximum allowable surface injection pressure shall be less than the fracture pressure.”⁵⁹ In 2019, CalGEM adopted regulations expressly permitting “steam fracking,” allowing operators to inject steam down wellbores at pressures high enough to crack underground formations.⁶⁰ Spills have increased since CalGEM loosened restrictions on the maximum allowable surface pressure for injection wells.

Incredibly, the report also details how there is no disincentive for operators that would prevent these sorts of spills from happening in the future. In fact, many become a financial windfall. Operators have “commercialize[d] surface expressions, despite warnings by staffers about environmental and human harm.”⁶¹ Chevron’s GS-5 spill started in 2003 and has so far spilled 16.8 million gallons of oil, more than the amount spilled by the Exxon Valdez. The report noted, “In the last three years alone, the crude collected from GS-5 has generated an estimated \$11.6 million.”⁶² Chevron alone reported 64 spills between 1997 and 2010.⁶³ Over the past 20 years, 14 of those sites have spilled a combined 20 million gallons of oil, worth more than \$19 million.⁶⁴

The SREIR must incorporate the findings of this new report in its environmental review of the impacts of the Ordinance. The enormous impact of unchecked spills requires that the County consider and implement mitigation measures to address them, including without limitation containment requirements, public notification requirements, and a prohibition on sale of the spilled oil for profit.

VII. Conclusion

For the reasons set forth above and those described in the September 16 Letter, we urge the County to reopen the comment period, to institute measures to allow Spanish-speaking residents to participate meaningfully in the public process, and, ultimately, to reject the Ordinance.

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ 14 Cal. Code Regs., § 1724.10 (2018).

⁶⁰ *Id.* § 1724.10.3(b) (Effective April 1, 2019).

⁶¹ Wilson (2020).

⁶² *Id.*

⁶³ *Id.*

⁶⁴ *Id.*

We reserve the right to identify new issues, provide additional information, and propose additional mitigation measures during the County's ongoing decision-making process for the Ordinance.

Sincerely,

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Addendum A

SETBACKS IN OTHER JURISDICTIONS

The below citations provide examples of oil and gas setbacks in other jurisdictions across the country.

California

Cal. Code Regs., tit. 14, §§ 1720(a)(A), 1722(c), 1724.3

City of Arvin Mun. Code, tit. 17, ch. 17.46, § 17.46.022(A)(1), (A)(2), (C)

City of Carson Mun. Code, art. IX, ch. 5, § 9521(A)(1), (C)

Huntington Beach Mun. Code, tit. 15, ch. 15.20, § 15.20.030(D)

Los Angeles County Code, tit. 22, ch. 22.140, § 22.140.400(C)(3)

Orange County Code of Ordinances, tit. 7, div. 8, art. 1, § 7-8-34(a)(3)-(4)

Signal Hill Mun. Code, tit. 16, ch. 16.16, § 16.16.030(B)(5)

Ventura County 2040 General Plan (Sept. 2020) at p. 6-12

Colorado

2 Colo. Admin. Code, § 404-1:604(a)(1), (a)(3), (a)(4) [Colorado's Oil and Gas Conservation Commission approved a preliminary final vote establishing new 2,000-foot setback rules for drilling and fracking operations statewide, effective January 1, 2021]

Maryland

Md. Code, Environment, tit. 14, § 14-112(a)

New Mexico

Rio Arriba County Oil & Gas Ordinance, art. 6, § 6.2(D)

San Miguel County Ordinance No. 11-12-14-O&G, art. II, § 2124.12.1

Santa Fe County Code of Ordinances, tit. 15, ch. 150, § 11.26.1(a)-(b)

North Dakota

N.D. Stats. § 38-08-05(2)

Oklahoma

Stillwater City Code, ch. 23, art. XXI, §§ 23-410.2, 23-410.6(A)(1)

Pennsylvania

Kennedy Township Zoning Ordinance, art. XIV, § 1501.3(a)

Penn Township Zoning Ordinance No. 912-2016, art. 4, §§ 190-202, 190-407(G)(6)

Texas

City of Arlington Code of Ordinances, Gas Drilling & Production ch., art. II, § 2.01; art. VII, § 7.01(B)(1)

City of Colleyville Code of Ordinances, ch. 3.1, § 3.1-145(D)(1)

City of Coppell Code of Ordinances, ch. 9, art. 9-26, § 9-26-14(A)(40)

City of Dallas Code of Ordinances, vol. III, ch. 51A, art. IV, § 51A-4.203(b)(3.2)(F)(ii)(aa), (ee)

City of Fort Worth Code of Ordinances, pt. II, ch. 15, art. II, div. V, § 15-36(a)

City of Mansfield Zoning Ordinance, § 7960(1)-(3)

Town of Flower Mound Code of Ordinances, pt. I, subpart A, ch. 34, art. VII, § 34-422(d)(1)

Wyoming

Wyo. Oil & Gas Conservation Com. Rules, ch. 1, § 2(gg); ch. 3, § 47(a)

0010-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. The comment notes that it addresses new information since the their previously submitted September 16, 2020, comment letter on the SREIR (August 2020). The comment requests response to the comments in the supplemental letter.

All submitted comments on the SREIR will be evaluated, and written responses will be provided. See Cal. Pub. Res. Code § 21091, CEQA Guidelines §§ 15088, 15162(d).

0010-2

The comment notes that the September 16, 2020 letter discussed upstream oil and gas development activities, and that they may be disproportionately located in close proximity to low-income, Hispanic or Latinx, and Spanish-speaking communities in the County. The comment urges a public process for the Project accessible in Spanish, to allow Spanish-speaking residents the opportunity to provide meaningful input on the Project.

Neither CEQA nor the CEQA Guidelines require lead agencies to translate public notices or environmental review documents into Spanish or any other language. The California Legislature has recognized that statutory changes would be necessary to add a translation mandate to CEQA, as reflected in several unsuccessful bills that would have required translation of CEQA documents. Senate Bill 950 (2019-2020 Reg. Sess.) would have required the Office of Planning and Research to develop requirements for translation of certain CEQA “notices and other documents” into non-English languages spoken by a “substantial number of people” served by the lead agency, but failed passage in the Senate Environmental Quality Committee in May 2020. The Legislature passed Assembly Bill 2447 (2017-2018 Reg. Sess.), which would have required translation of certain CEQA notices into specifically defined “threshold languages” prevalent in the area in which the project is located. The Legislature also passed Senate Bill 543 (2013-2014 Reg. Sess.), which would have required the Office of Planning and Research to develop guidelines for when a lead agency must translate CEQA notices into non-English languages. However, the Governor vetoed both bills. No such translation requirement is currently in effect, and such legislative efforts would be unnecessary if lead agencies already were required to translate CEQA documents.

California case law does not support a requirement to translate documents into Spanish or another language. California courts have consistently interpreted CEQA's “plain language” requirements to ensure that CEQA documents are informative and comprehensible, but have not required that they be translated. “The message of this regulatory scheme is clear: an EIR in this state must be written and presented in such a way that its message can be understood by governmental decisionmakers and members of the public who have reason to be concerned with the impacts which the document studies.” *San Franciscans for Reasonable Growth v. City and County of San Francisco* (1987) 193 Cal.App.3d 1544, 1549. This case does not stand for the proposition that the SREIR must be translated into non-English languages. The Court of Appeal confirmed that neither public notices nor the FEIR's executive summary was required to be translated into Spanish, nor was the provision of Spanish language interpreters at public meetings related to the EIR required. *King & Gardiner Farms, LLC v. County of Kern* (2020) Case No. F077656, (Cal. Ct. App. 5th Dist. Feb. 25, 2020), Slip Opinion, at p. 122-126.

After reviewing provisions of CEQA and the CEQA Guidelines, the court found that “applicable law contains no express requirements for interpreters or translation of documents,” and “such a mandatory requirement cannot be implied (citing Cal. Pub. Res. Code § 21083.1).” Slip Opinion, at p. 125. “CEQA, the Guidelines, and other applicable laws did not require the County to provide interpreters or translations of documents.” Slip Opinion, at p. 125. No provisions in CEQA nor the CEQA Guidelines require lead agencies to translate documents into Spanish or any other language. Cal. Pub. Res. Code § 21003(b) requires that CEQA documents be “organized and written in a manner that will be meaningful and useful to decisionmakers and to the public.” Guidelines § 15123(a) provides that the EIR must contain a summary of the proposed action and its consequences, and the summary should be written in language which “should be as clear and simple as reasonably practical.” See CEQA Guidelines § 15201 (providing that “[p]ublic participation is an essential part of the CEQA process”); CEQA Guidelines § 15002 (describing CEQA's general public information and disclosure purposes). Cal. Pub. Res. Code § 21083.1 provides that CEQA and the Guidelines “shall not [be] interpret[ed] ... in a manner which imposes procedural or substantive requirements beyond those explicitly stated.”

These general public participation and drafting provisions cannot be read to imply a translation requirement that is not explicitly stated. Although they were not required, Spanish translation services were offered at the Project's virtual scoping meeting on May 13, 2020; the virtual public workshop on August 17, 2020, for the SREIR (August 2020); and the November 10, 2020, public workshop on the SREIR (October 2020) to foster public participation in the SREIR's preparation process among Spanish-speaking residents. At these meetings, options for Spanish language translation through closed captioning and live interpretation via conference call were provided. Forty-five-day public comment periods on both the SREIR (August 2020) and SREIR (October 2020) were also provided, thereby fulfilling obligations under CEQA and the CEQA Guidelines.

0010-3

The comment states that a recent analysis conducted by FracTracker Alliance (FTA) demonstrates that oil and gas development in the Project Area disparately impacts low-income, over-burdened, Hispanic, and linguistically isolated residents. The comment further states that FTA's analysis demonstrates that from 2015 to May 18, 2020, 97.9 percent of drilling and reworking permits issued by the California Geologic Energy Management Division (CalGEM) for operations in Kern County were issued in census block groups where the median income was at least 20 percent lower than the remainder of the County, and 99.7 percent were issued in census blocks above the 60th percentile for pollution burden under CalEnviroScreen 3.0.

The SREIR (October 2020) notes that social and economic factors do not constitute impacts under CEQA, but may contribute to environmental impacts or determinations of the significance of impacts. See SREIR (October 2020), Vol. 1, at 6-39. For informational purposes, the SREIR's (October 2020) analysis of Alternative 7 (2,500-Foot Setback Alternative) includes updated demographic and poverty level census tract data in the projected locations of future oil and gas activities permitted under the Project. See SREIR (October 2020), Vol. 1, at 6-39–42.

Under the Project and SREIR's tiering categorizations, Tier 1 lands are areas where current oil and gas activity is the primary land use, and where well and activity densities preclude almost all other uses. See SREIR (October 2020), Vol. 1, at 3-30. According to CalGEM information, 87 percent of all active oil and gas wells in Kern County in 2014 were located within Tier 1 lands. See SREIR (October 2020), Vol. 1, at 6-39. According to the SREIR's annual well forecasts, the vast majority (90.3 percent) of oil and gas wells permitted under the Project are projected to be located in Tier 1 lands. See SREIR (October 2020), Vol. 1, at 3-38–3-40, 6-39. Tables 6-1 and 6-2 of the SREIR (October 2020) summarize 2015 and 2018 American Community Survey (ACS) census tract data for population, demographic, and poverty levels in (1) in Tier 1 lands, (2) non-Tier 1 lands, and (3) Kern County as a whole. The 2018 ACS data show that the percentage of the population identified as white is higher in Tier 1 census tracts (46.1 percent) than in Kern County as a whole (34.8 percent) and in non-Tier 1 census tracts (31.5 percent). The percentage of the population identified as Hispanic is lower in Tier 1 census tracts (44.0 percent) than in Kern County as a whole (52.8 percent) and in non-Tier 1 census tracts (55.3 percent). See SREIR (October 2020), Vol. 1, at 6-41. The percentage of the population identified as below the poverty level in Tier 1 census tracts (17.4 percent) is lower than in Kern County as a whole (22.0 percent) and in non-Tier 1 census tracts (23.3 percent). See SREIR (October 2020), Vol. 1, at 6-42. The SREIR (October 2020) explains that the vast majority of wells proposed under the Project (i.e., projected in Tier 1 lands) are therefore anticipated to be located in areas with a higher proportion of white residents and a lower poverty rate, when compared to non-Tier 1 lands and the County as a whole. The SREIR (October 2020) thus explains that oil and gas activities permitted under the Project are unlikely to be spatially distributed in a manner that disproportionately focuses potential environmental impacts on Hispanic or low-income populations. See SREIR (October 2020), Vol. 1, at 6-42.

There are important distinctions between the SREIR (October 2020)'s analysis and FTA's analysis. First, FTA compared census block data for locations in Kern County where CalGEM issued permits to census block data for the rest of California. FTA's observation that the census blocks where permits were issued in Kern County have been more Hispanic, linguistically isolated, and in the 60th percentile for pollution burden is predictable, because Kern County has a higher percentage of Hispanic, linguistically isolated, and pollution burdened populations than do other areas of California. Conversely, FTA's observation that "from 2015-2019, very few well permits were issued in census blocks that are predominantly white" is correct, due to the fact that Kern County as a whole is 34.8 percent white based on 2018 ACS data (FTA 2020). See SREIR (October 2020), Vol. 1, at 6-41. Rather than comparing census block data to other parts of California, the SREIR (October 2020) compares demographic and poverty level data in different areas within the Project Area (i.e., Tier 1 lands and non-Tier 1 lands). By comparing poverty and demographic census tract data from Tier 1 lands (where the vast majority of future oil and gas wells are projected to be located) to non-Tier 1 lands and Kern County as a whole, the SREIR (October 2020) provides a more localized comparison of how future oil and gas activities may impact disadvantaged communities in various parts of the Project Area. Although social and economic impacts are not required to be analyzed as impacts under CEQA in and of themselves, the SREIR (October 2020) considers the anticipated location of oil and gas activities permitted under the Project in relation to disadvantaged communities, and does so using reliable, accurate, and updated data. Under CEQA, lead agencies

are afforded deference in making factual determinations and in evaluating conflicting evidence. See *Save our Peninsula Comm. v. Monterey Cty. Bd. of Supervisors*, 87 Cal.App.4th 99, 117 (2001) (“[courts] must indulge all reasonable inferences from the evidence that would support the agency’s determinations and resolve all conflicts in the evidence in favor of the agency’s decision.”)

0010-4

The comment states that, because new oil and gas development disproportionately affects Hispanic community members, additional steps must be taken to make the public process for the SREIR accessible in Spanish.

Please see Response to Comment 0010-2 and Global Response (GR) 3 – Public Process. To foster public participation in the SREIR’s preparation process among Spanish-speaking residents, Spanish translation services were offered at the May 13, 2020, scoping meeting; the August 17, 2020, public workshop on for the SREIR (August 2020); and the November 10, 2020, public workshop on the SREIR (October 2020). Please see Response to Comment 0010-2. At these meetings, Spanish-speaking residents were able to view the meeting with Spanish closed captions, and had the option to dial into a conference call number to hear live translation of the meeting in Spanish. Although verbal comments were not accepted in any language, participants were able to submit written comments via the teleconference platform’s chat function. Public workshop comments received in Spanish were translated into English, considered, and responded to; see Section 7.2.2 of this chapter. The SREIR’s public participation ensured that Spanish-speaking residents were afforded the opportunity to review and submit public comments on the SREIR (August 2020) and SREIR (October 2020).

0010-5

The comment states that very few permits for new oil and gas development have been issued since 2015 in census blocks that are predominantly white, above median income, and not linguistically isolated, resulting in a disproportionate burden from oil and gas environmental impacts on low-income, Spanish-speaking, Hispanic communities. The comment also states that the County’s administration of the Ordinance violates Cal. Gov. Code § 11135. Section 11135 prohibits discrimination based on race, ethnic group identification and other personal characteristics in employment, housing, and eligibility for state-funded government programs that provide services, financial aid, or other benefits to the public.

Section 11135 has no bearing on permitting or regulation of oil and gas activities. The SREIR (October 2020) discusses an analysis of Kern County census tract data that demonstrates that the percentage of the population identified as white is higher in Tier 1 census tracts (46.1 percent)—where the majority of oil and gas development will occur—than in Kern County as a whole (34.8 percent) and in the non-Tier 1 census tracts (31.5 percent). The percentage of the population identified as Hispanic is lower in Tier 1 census tracts (44.0 percent) than in the County as a whole (52.8 percent) and in the non-Tier 1 census tracts (55.3 percent). The percentage of the population identified as below the poverty level in Tier 1 census tracts (17.4 percent) is lower than in the County as a whole (22.0 percent) and in the non-Tier 1 census tracts (23.3 percent). See SREIR (October 2020), Vol. 1, at 6-39–43. These results demonstrate that activities permitted under the Ordinance do not appear to be spatially distributed in a manner that could result in disparate impacts based on race or other characteristics listed in Government Code section 11135. Please also see Responses to Comments 0010-3 and 0010-4.

0010-6

The comment objects to the SREIR’s quotation of a statement that grazing may be associated with adverse environmental impacts and asserts that this statement should not be utilized to “avoid an evaluation of oil and gas impacts” on rangeland.

This comment falls outside the scope of the limited CEQA review required by the Court of Appeal’s decision. Please see GR-1 – Beyond the Scope of the SREIR. This statement appeared in the 2018 SEIR prepared for analysis of Project impacts on rangeland and grazing lands and was carried forward unchanged in the SREIR. The statement quoted a document prepared by one of the organizations that signed this comment, the Center for Biological Diversity, as evidence that some adverse effects of grazing have been asserted. However, the statement was not used to avoid evaluation of oil and gas impacts on rangeland, and the 2018 SEIR did contain such analysis. Instead, the statement was part of the explanation of the significance methodology utilized in the 2018 SEIR, which was based on the productivity of livestock grazing activity rather than on acres utilized for that activity. The 2018 SEIR explained that “choosing a significance methodology and threshold that seeks to conserve the maximum number of grazing land acres would not be environmentally beneficial, especially where the same or greater productivity is being attained on a smaller footprint of grazing land, as demonstrated by the historic data discussed” in the SEIR. See SREIR (October 2020), Vol. 8. Comments on the Draft 2018 SEIR were submitted, but the Final 2018 SEIR was not legally challenged. It was accepted by the Superior Court as satisfying its mandate to provide supplemental review of impacts on rangeland. It is not necessary to revise the SREIR as requested by the comment.

0010-7

The comment states that the SREIR recognizes that emissions from the Project would exceed applicable significance thresholds for air quality. The comment provides an accurate restatement of the SREIR's air quality calculations and conclusions. See SREIR (October 2020), Vol. 1 at 4.3-93–143, 160–166. See also Response to Comment 0009-16.

The comment also states that the Project would result in significant and unavoidable cumulative impacts on greenhouse gas emissions with mitigation. Please see GR-1 – Beyond the Scope of the SREIR. This comment does not provide a specific concern related to the adequacy of the SREIR and thus a detailed response is not required.

0010-8

The comment states that the SREIR relies on the use of San Joaquin Valley Air Pollution Control District's (SJVAPCD) Emission Reduction Credit (ERC) program. The comment correctly restates various aspects of the SJVAPCD ERC program.

This comment does not provide a specific concern related to the adequacy of the SREIR and thus a detailed response is not required. Please see Response to Comment 0006-13, which fully discusses the SREIR's discussion of the SJVAPCD ERC program, its use as a mitigation measure in the SREIR, and the recent audit of the SJVAPCD ERC program.

The comment also states that the SREIR appears as though it may intend to rely on use of the ERC program for greenhouse gas emissions. Please see GR-1 – Beyond the Scope of the SREIR.

0010-9

Please see Responses to Comments 0006-13 and 0010-8.

0010-10

This comment appears to correctly restate aspects of the California Air Resources Board (CARB) audit of the SJVAPCD's ERC program.

This comment does not provide a specific concern related to the adequacy of the SREIR and thus a detailed response is not required. Please see Responses to Comments 0006-13 and 0010-8.

0010-11

This comment appears to correctly restate the SJVAPCD response to the CARB's audit of the SJVAPCD's ERC program audit.

Please see Responses to Comments 0006-13 and 0010-8. This comment does not provide a specific concern related to the adequacy of the SREIR and thus a detailed response is not required.

0010-12

Please see Responses to Comments 0006-13 and 0010-8. The SREIR analyzes the reports related to the CARB audit and considers their impact on the air quality analysis. As to greenhouse gases, please see GR-1 – Beyond the scope of the SREIR.

0010-13

This introductory comment summarizes various statements included in various meeting notes, memorandum, and judicial opinions regarding the evaluation of the Project's impacts on sensitive receptors in accordance with CEQA.

This comment does not raise any environmental issues specific to the SREIR (October 2020). The SREIR (October 2020) discloses and evaluates the Project's impacts on sensitive receptors, including related air quality impacts and noise impacts. See SREIR (October 2020), Vol. 1, at 4.3-143–160, 4.12-24–56.

0010-14

The Ordinance and various Project mitigation measures establish minimum setback and mitigation trigger distances between oil and gas activities and sensitive receptors. The SREIR (October 2020) includes mitigation requirements to ensure that oil and gas wells are located an appropriate distance from sensitive receptors. To protect against health risks from impacts to air quality, MM 4.3-5 requires that the Site Plan for a proposed activity include a Site Vicinity Figure showing the location of any sensitive receptor(s) located within 4,000 feet (over $\frac{3}{4}$ of a mile) of the construction site. If sensitive receptors are present within 4,000 feet of the well site, the applicant must either meet the applicable mitigation trigger distance, derived from the Health Risk Assessment (HRA), or implement additional emission reduction measures to achieve the County's standard.

MM 4.12-1 and MM 4.12-2 establish similar regimes to address the exposure of sensitive receptors to noise during construction and operations. Both measures establish mitigation trigger distances based on specific activities. If sensitive receptors are located inside these trigger distances, then the applicant must prepare an Acoustic Noise Reduction Report that demonstrates either that, based on site-specific measurements, the activities will not exceed the Noise Standard, or that noise reduction measures will achieve the applicable noise standard. However, in no case may an applicant site a well closer than 210 feet from any sensitive receptor, with the distance being retained at the current ordinance provisions of 300 feet for school property. . As described in Chapter 4.3, Air Quality and Chapter 4.12, Noise, the distances in these mitigation measures are based specifically on local conditions, equipment, and drilling practices utilized in Kern County, as well as incorporate numerous conservative assumptions. The scientifically based setbacks and mitigation trigger distances established in these mitigation measures adequately protect sensitive receptors.

With regard to this comment's assertion that the Project setback requirements fail to consider various studies that, in the commenter's view, necessitate a minimum setback of 2,500 feet, please see Responses to Comments 0009-62, 0009-65 through 0009-77, and SREIR (October 2020), Vol. 1, at 4.3-28-46, 4.12-8-10, and 4.9-184-188, which consider and discuss the relevance of the various studies referenced in this comment. The Health Studies Chart attached to Comment Response set 0009 includes an expanded discussion of the findings (the methods, findings and conclusions of each), as well as responses tailored to each study and report. As noted in Response to Comment 0009-62, none of the studies or reports present information that calls into question the adequacy of the SREIR's analyses of health impacts from oil and gas development activities, or the health-risk based setback distances discussed above. None of the studies demonstrate that new mitigation measures beyond those already incorporated into the SREIR (October 2020) would substantially reduce impacts of the Project. Nor do the studies demonstrate that Alternative 7, 2,500-foot Setback Alternative, would avoid or substantially lessen any of the Project's significant environmental impacts. Although none of the studies referenced in this comment suggest that new mitigation, beyond the mitigation measures described in the SREIR (October 2020), is necessary to mitigate Projects on sensitive receptors, the SREIR (October 2020) was updated at pages 6-34 through 6-45 to include full analysis of the stand-alone 2,500-Foot Setback Alternative. This updated analysis finds that such an alternative would not result in less severe environmental impacts than would the Project and could exacerbate air quality impacts by incentivizing more high-emission horizontal drilling activities. Therefore, the SREIR contains a thorough discussion of elevated risks associated with oil and gas wells.

0010-15

The comment states that the SREIR (August 2020) incorrectly summarizes the previously applicable setbacks. The comment states that Table 3-3 of the SREIR (August 2020) inaccurately characterizes the setback distances applicable in the Drilling Island (DI) and Petroleum Extraction (PE) Districts.

The current (pre-Project) Ordinance Chapter 19.66, Petroleum Extraction (PE) Combining District, includes standards applicable to the PE District to establish a two-track permitting system wherein wells drilled more than 300 feet away from a dwelling were permitted as of right, and wells drilled less than 300 feet away were permitted with a Conditional Use Permit. While Table 3-3 indicates that the PE District uses a 300-foot setback for dwellings, note (h) explains that this is a standard only to be permitted by-right. See SREIR (October 2020), Vol. 1, at 3-17. The PE District does not in fact establish a more restrictive setback. The development standards applicable to the DI District refer to the current Chapter 19.98 of the Ordinance. The comment is correct that Table 3-3 incorrectly states that the setback distance from dwellings required in the DI District is 300 feet. This table has been updated to replace the incorrect setback value of 300 feet with the correct value of 150 feet, as shown in Section 7.3.1, Errata, of this chapter. The comment states that the setbacks proposed in the Ordinance are less restrictive than the setbacks included in the pre-2015 Ordinance, which is now the current Ordinance. For a discussion of the setbacks and mitigation triggering distances, please see GR-5 – Setback and Mitigation Measure Trigger Distances.

The setback distances described in the current Zoning Ordinance Chapters 19.98, Oil and Gas Activities; 19.48, Drilling Island (DI) District; and 19.66 Petroleum (PE) District were established based on generally accepted standards of appropriate distances necessary to reduce impacts from oil and gas operations. In revising the Ordinance, detailed noise and air studies were prepared to assess the actual effects of oil and gas development under "worst case" conservative assumptions. This scientific assessment demonstrated that at 210 feet, the health impacts and operational noise impacts from production are mitigated to less than the County's absolute General Plan noise limit. The SREIR requires larger distances, or a combination of larger distances and noise and/or emission reduction measures, to ensure that the proposed activity can achieve the County's noise and air quality standards. The analysis conducted by the County's experts does not support the requirement for a larger setback from schools, institutions, or places of public assembly. Nevertheless, due to public sensitivity to oil and gas development in proximity to schools, the Ordinance has been revised to maintain the current 300-foot setback from these uses. For ease of reference, the table below shows the evolution of applicable setback standards over time.

Receptor	Distance Current Ordinance § 19.98.050	2015 Ordinance § 19.98.060	2021 Proposed Ordinance § 19.98.060
Public highway or building not necessary to operation of the well	100 feet	100 feet	100 feet
Dwelling	150 feet	210 feet	210 feet
Place of public assembly or institution	300 feet	210 feet	210 feet
School	300 feet	210 feet	300 feet
Commercial building	50 feet	100 feet	100 feet

0010-16

The comment states that the setbacks included in Section 19.98.060 of the Ordinance are not supported by evidence and are insufficiently protective.

The statement that the setback distances required for the Project are derived from the recommendations of the Project applicants is inaccurate. The best management practices (BMPs) submitted by the Project Proponent were, in many instances, already required by applicable law and regulations, including the recommended setback requirements, which reflected then-current zoning standards of the County. See SREIR (October 2020), Vol. 1, at 3-77. The SREIR did not assume implementation of these recommended BMPs. See SREIR (October 2020), Vol. 1, at 3-77. As the table in Response to Comment 0010-15 illustrates, the proposed Ordinance maintains or increases the setback distances for all uses except places of public assembly and institutions. As explained in Response to Comment 0010-15, the scientific assessment of air and noise impacts on sensitive receptors did not support a setback greater than 210 feet. However, due to public sensitivity regarding the proximity of oil and gas development to schools, the Ordinance maintains the 300-foot setback.

The comment states that the 90-foot reduction in the setback distance for places of public assembly and institutions cannot be supported because the SREIR notes that construction noise would be in excess of County standards at even 300 feet. Without mitigation, construction noise would be in excess of the County's standards at either 210 or 300 feet. The SREIR (October 2020) imposes mitigation to address this issue. The Ordinance's minimum setback standards must be read in conjunction with applicable mitigation requirements, which establish mitigation triggering distances well in excess of the proposed Ordinance's minimum setbacks. To protect against health risks from impacts to air quality, MM 4.3-5 requires applicants to determine whether a sensitive receptor is located within 4,000 feet (over ¾ of a mile) of the construction site and then to determine whether the mitigation trigger distances for specific activities in specific areas can be met. These mitigation trigger distances are derived from the HRAs conducted for the Project. If these trigger distances cannot be met, then additional emission reduction measures are required in order to meet the SJVAPCD health risk threshold. Similarly, to mitigate impacts from noise, MM 4.12-1 and MM 4.12-2 require applicants to determine whether a sensitive receptor is located within 4,000 feet of the construction site and then to determine whether a sensitive receptor is located within the mitigation trigger distance for the particular activity. If these trigger distances cannot be met, then the applicant must prepare an Acoustic Noise Reduction Report demonstrating compliance with the County's standard. Whatever the result of these additional reduction measures for air and noise impacts, no well may be sited closer than 210 feet from a residence, place of public assembly, or institution. This distance is derived from the 65-decibel (dB) contour for diesel-powered well production and is supported by evidence in the record. The setback in the Ordinance that is applicable to these uses was updated to reflect this scientific assessment. Please also see GR-5 – Setback and Mitigation Measure Trigger Distances.

0010-17

The comment expresses concern regarding the proposed Ordinance's minimum setback standards.

Please see Response to Comment 0010-16, which explains that the Ordinance's minimum standards must be read in conjunction with all Project mitigation measures and their setback requirements. This comment incorrectly states that the proposed Ordinance would decrease setback distances between oil and gas wells and existing residences from 300 feet to 210 feet in the PE and DI Districts. The current setback distance in these districts for residences is 150 feet. Please see Response to Comment 0010-15. The proposed Ordinance would increase the setback from 150 feet to 210 feet.

0010-18

The comment states that the Project setback requirements fail to consider various studies that necessitate a minimum setback of 2,500 feet.

Please see Responses to Comments 0009-65 through 0009-77, and SREIR (October 2020), Vol. 1, at 4.3-28–46, 4.12-8–10, and 4.9-184–188, which consider and discuss the relevance of the various studies referenced in this comment. Although none of these studies suggest that new mitigation, beyond the mitigation measures described in the SREIR (October 2020), is necessary to mitigate the Project’s impacts on sensitive receptors, the SREIR (October 2020) was updated at pages 6-34 through 6-45 to include full analysis of the stand-alone 2,500-Foot Setback Alternative. This updated analysis finds that such an alternative would not result in less severe environmental impacts than would the Project and could exacerbate air quality impacts by incentivizing more high-emission horizontal drilling activities. The SREIR contains a thorough discussion of elevated risks associated with oil and gas wells.

0010-19

The comment restates the requirements of MM 4.3-5 and states that it is not based on substantial evidence due to the flaws the comment perceives with the single-well HRA conducted in June 2015.

Please see GR-1 – Beyond the Scope of the SREIR. The Court of Appeal issued a decision upholding the 2015 FEIR against all claims except for five areas: (1) mitigation of water supply impacts; (2) impacts from PM_{2.5} emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well Health Risk Assessment. Neither the validity of the single-well HRA nor the adequacy of MM 4.3-5 was challenged, and thus the SREIR is not required to modify the analysis or the mitigation measure. Nonetheless, please see Responses to Comments 0008-27 and 0008-58 through 0008-62 for a discussion of the adequacy of both the single-well HRAs and the multi-well HRA in the SREIR.

The comment states that the SREIR ignores the conclusion that when concentrations are estimated for both well and related oil processing equipment, larger minimum setbacks are needed to avoid exceeding a cancer risk of 10 in one million. Table 4.3-34 shows potential health risk from well construction, drilling, and completion emissions, while Table 4.3-35b shows estimated cancer risks from operational emissions from oil processing equipment. See SREIR (October 2020), Vol. 1, at 4.3-148–150. Table 4.3-35b shows that a potential cancer risk of 10 in one million could occur from 295 to 701 feet away from processing equipment. The SREIR also explains that “[b]y 2018, due to emission reductions resulting from compliance deadlines occurring from CARB current diesel regulations the risk associated with drilling” would only be above the 10 in one million threshold for a 10,000-foot well. SREIR (October 2020), Vol. 1, at 4.3-151. While the cancer risk from oil processing equipment would exceed 10 in one million from the fence line to 295 to 701 feet, depending on Subarea and HRA assumptions (i.e., either the June 2015 or September 2015 HRA), the oil processing equipment would require operating permits from the SJVAPCD. Total risk for the facility would be modeled at that time and would be required to meet the current SJVAPCD threshold. See SREIR (October 2020), Vol. 1, at 4.3-151.

Processing equipment is not included in the single-well HRA analysis because this equipment is not sited at each well. See SREIR (October 2020), Vol. 3, 7.2.1, at 7-217 (GR-Air-3: Sufficiency of Health Risk Assessment (June 2015)). The SREIR explains that therefore, impacts on health risk would be significant. The SJVAPCD also requested revisions and remodeling of the June 2015 single-well HRA, which resulted in the September 2015 HRA, but the SJVAPCD did not request or require that the single-well HRA include oil processing equipment. See SREIR (October 2020), Vol. 3, at 7-227–228 (explaining the methodological changes requested by the SJVAPCD in 2015). The SREIR is not required to combine the HRA analyses for both drilling and oil processing equipment, and the comment has cited no evidence that it is required to do so under CEQA. In addition, the SJVAPCD adopted a revised health risk threshold of 20 in one million on June 30, 2015, and thus any HRA that was completed now would show substantially lower likelihood of exceeding the applicable threshold. Please see Responses to Comments 0009-33 and 0009-62 through 0009-79 for a discussion of the SREIR’s discussion of potential health risk from oil and gas activities and the necessity for a larger setback from oil and gas activities.

0010-20

Please see Response to Comment 00010-19. The SREIR may reasonably rely on the SJVAPCD appropriately implementing and enforcing its own rules related to health risk from oil processing equipment. The SJVAPCD is required by law to approve permitted equipment in its jurisdiction, and thus it is reasonable to rely on the SJVAPCD to exercise its permitting authority under the law in regards to oil processing equipment. The SJVAPCD, as the expert agency for air quality in the Project Area, is vested with authority to permit equipment that triggers its permitting rules, and it is expected that they will do their duty under law. In assessing the adequacy of mitigation programs, courts presume that agencies will comply with their own ordinances and requirements. *City of Marina v. Board of Trustees of California State University* (2006) 39 Cal.4th 341, 365; *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 140-141.

In addition, oil processing equipment is not located at all wells, and thus it would not be feasible for the single-well HRA to anticipate where oil processing equipment would be co-located with well drilling activities (i.e., in which Subareas and for which depth of wells). For this reason, the SREIR analyzes and sets mitigation trigger distances in MM 4.3-5 for construction emissions and allows for the SJVAPCD to conduct a more specific HRA analysis for oil processing equipment if and when that equipment is required in order to obtain a permit from the SJVAPCD. This does not represent deferred mitigation but rather an understanding of the possible and reasonable assumptions that could be utilized at the time the single-well HRAs were prepared. The SREIR has fulfilled its mandate of informing the public of the potential adverse consequences of Project implementation, and its analysis of health risk is adequate, complete, and a good-faith effort at full disclosure. CEQA Guidelines § 15003(i).

0010-21

The comment states that it is unclear how the County will implement and enforce MM 4.3-5.

The SREIR has been modified to explain that the list of distance triggers for mitigation in MM 4.3-5 and other distance triggers and setbacks required by the SREIR for sensitive receptors are measured with longitude and latitude data that must be the same in the Oil and Gas Conformity Review information as in the CalGEM permit. See SREIR (October 2020), Vol. 1, 4.3-157. MM 4.3-5 also requires longitude and latitude data for the property line of the closest sensitive receptor as well. Such data can be confirmed at the site with normal global positioning system (GPS) functions on any electronic device. See SREIR (October 2020), Vol. 1, at 4.3-158. Thus, the SREIR explains that the location of the well and well pad and the location of the sensitive receptor and its nearest property line are fixed and enforceable for the required mitigation distance in MM 4.3-5 and are not merely based on visual mapping calculations. See SREIR (October 2020), Vol. 1, at 4.3-158. This requirement is incorporated into the Ordinance as necessary for permit compliance. The applicant must provide written documents to allow the County to determine that all Ordinance conditions will be complied with at the time of the application. Please see Response to Comment 0009-148 for an explanation of permit revocation and potential citations and penalties that may apply in instances where any term or condition of the permit has not been complied with. Section 4.12, Noise, of the SREIR also explains how the mitigation trigger distances in MM 4.3-5 relate to and work with other setbacks and mitigation trigger distances in the SREIR and Ordinance. See SREIR (October 2020), Vol. 1, at 4.12-41–48.

0010-22

The comment states that the SREIR (August 2020) should have considered a stand-alone 2,500-foot setback requirement for the Project.

In response to this comment, the discussion of Project alternatives was updated in the SREIR (October 2020) to include full analysis of the stand-alone 2,500-Foot Setback Alternative, which determines that such an alternative would not result in less severe environmental impacts than would the Project and could exacerbate air quality impacts by incentivizing more high-emission horizontal drilling activities. See SREIR (October 2020), Vol. 1, at 6-34–45. With respect to the various studies referenced in this comment, please see Responses to Comments 0009-62 and 0009-65 through 0009-79, and the Health Studies Chart attached to Comment Response Set 0009. With respect to the Gonzales (2020) study referenced in this comment, please see Responses to Comments 0009-62, 0009-65, and 0009-71. With respect to the comment's observations regarding setback requirements adopted in other jurisdictions, please see Responses to Comments 0009-85 and 0009-86.

0010-23

The comment summarizes the SREIR (August 2020)'s analysis of incremental noise increases from construction activities.

The SREIR (August 2020) analyzes the Project's noise effects against an absolute noise threshold of 65 dB day-night average level (DNL). This is based on the Kern County General Plan's exterior noise level limit of 65 dB DNL for defined sensitive receptors. Because of the unique nature of oil and gas construction activities, the SREIR (August 2020) also analyzes the Project's noise effects against a two-pronged incremental noise threshold:

- (1) Where ambient noise is less than 65 dB, Project activities may increase the ambient noise by no more than 5 dB;
- (2) Where ambient noise is at or above 65 dB, Project activities may increase the ambient noise by no more than 1 dB.

The SREIR (October 2020) clarified that because the average ambient noise in the Project Area is 54.7 dB DNL, it is appropriate to assess the noise effects of the Project against the 5 dB increase standard, except where ambient noise is already in excess of the County's absolute noise threshold. See SREIR (October 2020), Vol. 1, at 4.12-26. This 5 dB incremental standard has been endorsed by the courts. See *Mission Bay Alliance v. Office of Community Investment & Infrastructure* (2016) 6 Cal.App.5th 160, 193; Slip Opinion, at p. 110–11. It is also consistent with the Metropolitan Bakersfield General Plan, which

applies a 5 dB threshold when the ambient noise is less than 60 dB, as in the majority of the Project Area. Less than 8 percent of the Project Area is within the area covered by the general plan. An increase of 5 dB is also the point at which a change in ambient sound becomes readily perceptible, while smaller changes are barely perceptible. Together, the absolute and incremental noise thresholds are referred to as the Noise Standard. The SREIR (August 2020) disclosed in Table 4.12-12 the varying Project noise levels that would meet these standards based on the ambient noise levels measures as part of the Environmental Noise Assessment. See SREIR (August 2020), Vol 1, at 4.12-29. However, the SREIR (August 2020) concluded that “due to varying ambient noise levels across the Project Area, it is impossible to ensure a predictable increase in ambient noise levels using feasible mitigation measures. Even with all feasible mitigation measures, it is impossible to eliminate all construction noise; thus, temporary noise impacts are significant and unavoidable.” See SREIR (August 2020), Vol. 1, at 4.12-30.

The SREIR (October 2020) updated this analysis to assess the effects of Project construction noise against the lowest measured ambient noise from the Environmental Noise Assessment. At Site 12, the ambient noise was measured at 44.8 dB. Applying the allowable 5 dB increase resulted in a conservative incremental noise limit of 49 dB. The SREIR (October 2020) calculated the construction noise contours for this 49 dB limit. Because this limit is based on the lowest measured ambient level in the Project Area, if the nearest sensitive receptor is located outside of these contours, the sensitive receptor will not experience an ambient noise increase above 5 dB. MM 4.12-1 was updated to reflect this new 49 dB contour and to require an Acoustic Noise Reduction Report based on site-specific measurements to achieve the Noise Standard detailed in the SREIR. See SREIR (October 2020), Vol. 1, at 4.12-40–41. Noise reduction measures include placement of a temporary sound attenuation wall; construction of a temporary berm; specific orientation of the drilling equipment on the well site and modification of the equipment to reduce noise impacts; implementation of detailed sounds reduction technology or practices to reduce the noise impact at the sensitive receptor’s property line; or written confirmation from the occupants of the sensitive receptor of their voluntary, temporary relocation or use restrictions during a defined construction period. SREIR (October 2020), Vol. 1, at 4.12-34. While any applicant must meet the Noise Standard to obtain a permit, there is no satisfactory means to measure the subjective effect of noise on every individual. Even with mitigation, temporary noise impacts are significant and unavoidable.

0010-24

The comment requests clarification as to whether the County’s Noise Standard utilizes the day-night level (DNL or community noise equivalent level (CNEL).

DNL represents the noise levels over a 24-hour period with a time-weighted factor applied to penalize noise events that occur during nighttime hours when relaxation and sleep disturbance are of greater concern for average residents. DNL is one of the most widely used descriptors for sound levels. It is recommended by the California Health Department and state planning law, and is used by the Kern County Planning and Natural Resources Department. The Kern County General Plan uses DNL in establishing absolute limits for noise from outdoor activities. Kern County General Plan, Noise Element at 148–149. To maintain consistency, MM 4.12-1 has been modified in the SREIR (October 2020) to require that all measurements conducted as part of the Acoustic Noise Reduction Report be reported in DNL.

0010-25

The comment summarizes legal principles regarding the adequacy of environmental analysis for which a detailed response is not required. This comment introduces other comments on the adequacy of the SREIR (August 2020) noise analysis.

The comment is introductory and does not require a detailed response. For a response regarding hourly monitoring, please see Response to Comment 0010-26. For a response regarding the analysis of indoor noise impacts, please see Response to Comment 0010-27. For a detailed response regarding simultaneous Project activities, please see Response to Comment 0010-28. For a detailed response regarding decommissioning and abandonment, please see Response to Comment 0010-29.

0010-26

The comment states that the SREIR should utilize hourly noise standards, based on a quote from SREIR (October 2020), Vol. 5, Appendix V-1.

Appendix V-1 explains that the precedent for using cumulative noise exposure metrics such as DNL is well established for land use compatibility purposes. SREIR (October 2020), Vol. 5, Appendix V-1, at 14. Appendix E to the SREIR (October 2020) also explains that the use of the noise metric DNL in the SREIR is further supported by the use of similar metrics in federal, state, and local noise reports and noise codes. At the federal level, the Federal Interagency Committee on Urban Noise developed land use compatibility guidelines using DNL as the common descriptor for noise levels, which have been incorporated

throughout the federal regulatory system. Today, the Federal Transit Authority, Federal Railway Authority, and Federal Aviation Authority all use this metric.

While DNL is widely considered the most appropriate metric for assessing the noise impacts of development, Appendix V-1 explains that where potential impacts are intermittent or occur at varying times of the day or night, hourly measures may be more appropriate. This is similar to the issue of single event noise, which is measured by the Sound Exposure Level (SEL), a noise metric commonly used to describe intermittent or isolated noise events such as an aircraft overflight or train pass-by, and should not be applied when describing long-term exposure over a 24-hour period of time. There are no noise standards that utilize the SEL metric. While activity levels at a particular drill site may vary over weeks and months, oil and gas construction is unique in that it typically occurs 24 hours a day with continuous drilling. Depending on the depth of the formation, some wells may take less than 24 hours to drill, while some wells in deeper formations may take more than 60 days to drill. For the purposes of this SREIR, it is assumed that wells take 23 days to drill on average, ranging from a minimum of 18 days to a maximum of 28 days, depending on well depth. During this time, noise from well sites is continuous, not intermittent, making hourly noise levels an inappropriate metric.

0010-27

The comment states that the SREIR fails to analyze indoor noise levels.

The comment is incorrect. The SREIR (October 2020) confirms that by controlling Project noise outdoors, indoor noise increases are also moderated because typical construction complying with building code standards and energy efficiency standards (Title 24) will be expected to provide an outdoor-to-indoor noise level reduction of at least 20 dB. See SREIR (October 2020), Vol. 1, at 4.12-25. By complying with the noise standards, sensitive receptors should not experience a significant interior increase. The SREIR contains a thorough and appropriate discussion of the Project's potential effect on interior noise levels.

0010-28

The comment states that the SREIR fails to analyze the cumulative effect of multiple construction activities taking place in close proximity.

Appendix V-1 of the SREIR (October 2020) explains that while additive noise effects from multiple noise sources are possible "[i]t is not possible to quantify or describe every potential scenario of combinations." See SREIR (October 2020), Vol. 5, Appendix V-1, at 18. Instead, the Environmental Noise Assessment used highly conservative assumptions to calculate noise contours based on a "worst case" scenario. Specifically, the noise measurements were taken from the loudest location during the loudest period of operation for each phase of construction. For purposes of the model, it was assumed that the equipment would be operated at this maximum noise level, continuously, over a 24-hour period. The model used to generate the contours also assumed topographical, atmospheric, and other site conditions that would lead to the greatest sound propagation. The SREIR (October 2020) then used this modeling to generate contours based on a 5 dB increase over the lowest measured ambient noise level in the Project Area and requires all applicants unable to achieve these conservative contours to prepare an Acoustic Noise Reduction Report.

While the comment states it is not possible to quantify or describe every potential scenario of combinations" for additive construction activities, these conservative assumptions alleviate the potential additive effects. It is also important to understand that additive noise sources are experienced differently from other cumulative environmental effects. For example, while drilling identical wells in close proximity to a sensitive receptor could double the receptor's exposure to pollutants, it does not double the noise experienced by the sensitive receptor. Instead, the sensitive receptor would experience only a 3 dB increase over a single drilling rig, which is below the 5 dB incremental standard applicable in most of the Project Area. This type of occurrence is also extremely unlikely in the Project Area. Historically there have been 4 to 12 drill rigs in Kern County at any given time between 2015 and 2020, and since April 2020 there have only been three to four drill rigs operating in Kern County and this number is unlikely to increase in the near future given oil and gas production activities. See SREIR (October 2020), Vol. 1, at 4.3-152; SREIR (October 2020), Vol. 2, Appendix B-1, at 3. A scenario where multiple wells are simultaneously drilled in close proximity to the same sensitive receptor is very unlikely and cannot be considered reasonably foreseeable. Even in the unlikely event that this were to occur, MM 4.12-1 has been modified in the SREIR (October 2020) to require ongoing monitoring to ensure that the County's Noise Standard is met.

0010-29

The comment states that the SREIR fails to mitigate the noise associated with well decommissioning and abandonment.

Well decommissioning and abandonment entails plugging and abandoning wells once they are no longer productive. Well decommissioning and abandonment involves removal, disassembly, and salvage or disposal of pumping units, well cellars, pipelines, and associated infrastructure; plugging the well with concrete and steel plates; and restoring the well pad. Equipment used for decommissioning and abandonment varies somewhat from that used for construction but would be expected to generate similar or lesser noise levels. Typical equipment used onsite for decommissioning and abandonment may include bulldozers, motor graders, front end loaders, cement and dump trucks, and well workover rigs. This is analogous to equipment used in well workover activities. Decommissioning and abandonment now requires a Minor Activity Review permit, which will require application of the noise standards.

0010-30

The comment summarizes the requirements of MM 4.12-1 as described in the SREIR (August 2020) and states that the SREIR does not clearly explain the basis for the setback distances because the values included in MM 4.12-1 for mitigation triggering distances differ from the values included in Table X of the 2015 Noise Assessment.

The comment uses Appendix V, the original Environmental Noise Assessment prepared as part of the 2015 Draft EIR, but the Environmental Noise Assessment was updated as part of the 2015 FEIR. This is included in as Appendix V-1 of the SREIR (October 2020). See SREIR (October 2020), Vol. 5, Appendix V-1. The mitigation triggering distances included in MM 4.12-1 in the SREIR (August 2020) were based on the 65 dB contours calculated in Table XI of Appendix V-1. The SREIR (October 2020) updated this analysis to assess the effects of Project-related construction and operation noise against the lowest measured ambient noise from the Environmental Noise Assessment, using a 49 dB contour line. For a discussion of the adequacy of the 49 dB contour, please see Responses to Comments 0008-20 through 0008-22.

0010-31

The comment states that the mitigation triggering distance for hydraulic fracturing should be at least 2,000 feet and the distance proposed in the SREIR (August 2020) is inconsistent with other analysis in the SREIR.

Well stimulation processes primarily consist of hydraulic fracturing treatments and acid well stimulation treatments (i.e., acid fracturing and acid matrix). Equipment used for these treatments is similar to that used for well construction. Stimulation may also involve more vehicles and equipment at a particular well site than during construction. Equipment used for well stimulation treatment may include mobile water tanks, truck-mounted blending units, sand storage trailers, truck-mounted pumps, generators, control vans, and other vehicles. Up to 20 truck-mounted pumps may be present at a well site for a large operation. Acid well stimulation treatments may require a similar amount of equipment and numbers of vehicles, although the types of equipment and vehicles may vary.

Typically, the loudest source of noise associated with hydraulic fracturing is the power generation equipment, which is typically a diesel-powered internal combustion engine. Hydraulic fracturing operations utilize several different pieces of equipment simultaneously, and noise level measurements obtained include noise from multiple equipment sources. The comment points to an inconsistency between these estimated contours for 20 pumper trucks and the contours developed as part of the Environmental Noise Assessment. As part of the analysis in the 2015 FEIR, estimated contours for 20 pumper trucks were provided in Table 4.12-13 from a confidential industry source. See SREIR (October 2020), Vol. 3, at 4.12-27. Also as part of the analysis in the 2015 FEIR, the Environmental Noise Assessment evaluated the noise generation from hydraulic fracturing operations, using on-the-ground measurements. The noise levels utilized for this study were the loudest observed measurements during the monitoring period and therefore represent a worst-case assessment of typical hydraulic fracturing activities. These observed noise levels were the basis for the final contour distances used in MM 4.12-1 in the 2015 FEIR. The SREIR (October 2020) has updated the triggering distances included in MM 4.12-1 to reflect the 49 dB contour. MM 4.12-1 now requires a 2,965-foot triggering distance for hydraulic fracturing. Where this distance cannot be achieved, the applicant must prepare an Acoustic Noise Reduction Report documenting noise reduction measures to achieve the County's Noise Standard. For a discussion of the adequacy of the triggering distances, please see Responses to Comments 0008-20 through 0008-22.

0010-32

The comment requests that MM 4.12-1 be revised to increase mitigation triggering distance requirements and that the SREIR should address recent studies demonstrating that a 2,500-foot setback is necessary.

The SREIR (October 2020) has updated the triggering distances included in MM 4.12-1 to reflect the 49 dB contour. For a discussion of the adequacy of the triggering distances, please see Responses to Comments 0008-20 through 0008-22. For a

discussion of a 2,500-foot setback, please see Responses to Comments 0009-5, 0009-33, 0009-57 through 0009-89, 0010-14, 0010-18, and 0010-22.

0010-33

The comment recommends that sensitive receptors be shown on the Site Vicinity Figure if they are located within 3,270 feet of a proposed well of any depth and/or ancillary equipment. The comment further recommends that the County ensure the accuracy of the applicant's submission through the use of Google Earth and inspections.

The SREIR (October 2020) has updated MM 4.12-1 to require the mapping of any sensitive receptors located within 4,000 feet of the construction site for the proposed new well or other ancillary facility or equipment (excluding pipelines). For any Exploratory Well Permit, MM 4.12-1 now requires the mapping of all sensitive receptors within 8,000 feet of the construction site. Prior to the issuance of a permit, the Ordinance requires that the Planning Director determine that the proposed use meets the development standards and conditions specified in the applicable provisions of the Ordinance. The applicant self-certifies compliance with Chapter 19.98 during construction and operation. Should a violation of a permit issued under this chapter occur onsite, a Certification and Finalization process for the Oil and Gas Conformity Review will be conducted by the County Oil and Gas Inspector, and self-certification for the permit will no longer be permitted for the applicant for the next issued permit, as a probationary period. A failure to accurately map sensitive receptors in compliance with MM 4.12-1 would also be a violation of permit requirements and the provisions of the Ordinance and is subject to County enforcement. For further discussion of the County's enforcement authority, please see Response to Comment 0008-47.

0010-34

The comment states that the operational setbacks in MM 4.12-2 are inadequate and that the SREIR fails to explain why operational setbacks are smaller than construction setbacks.

For purposes of the noise analysis in the SREIR (October 2020), construction activities include well drilling (including advancement, pull out, and large-scale exploration), well workover, and hydraulic fracturing. See SREIR (October 2020), Vol. 1, at 4.12-21–22; SREIR (October 2020), Vol. 5, Appendix V-1, at 16. Operation activities are defined to mean the ongoing production of a well for extraction purposes. Operating oil wells are typically powered by either electricity or, less frequently, a diesel-powered internal combustion engine. Electricity-powered wells produce significantly less noise than diesel-powered wells, and production in general is significantly quieter than activities defined as construction for purposes of the noise analysis. As part of the Environmental Noise Analysis, noise measurements were taken from the loudest location during the loudest period of operation. For purposes of the model, it was assumed that the equipment would be operated at this maximum noise level continuously over a 24-hour period.

The model used to generate the contours also assumed topographical, atmospheric, and other site conditions that would lead to the greatest sound propagation. The SREIR (October 2020) then used this modeling to generate contours based on a 5 dB increase over the lowest measured ambient noise level in the Project Area and requires all applicants unable to achieve these conservative contours to prepare an Acoustic Noise Reduction Report. The SREIR (October 2020) imposes a 210-foot setback from sensitive receptors based on the 65 dB contour and a 300 foot setback from schools. MM 4.12-2 also incorporates a mitigation triggering distance based on the 49 dB contour line, requiring the preparation of an Acoustic Noise Reduction Report if a sensitive receptor is located within 650 feet of a well. For a discussion of the adequacy of the revised mitigation triggering distances in MM 4.12-2, please see Responses to Comments 0008-20 and 0008-21.

0010-35

The comment states that it is unclear how the various setbacks and mitigation triggering distances apply to Project activities and that it is not clear how these distances are measured.

The SREIR (October 2020) has provided an updated discussion of how the various setback distances and mitigation triggering distances interact. See SREIR (October 2020), Vol. 1, at 4.12-41–48. The minimum setbacks established by MM 4.12-2 are immutable—no new well may be located within 210 feet of a sensitive receptor or within 300 feet of a school. In addition to this mandatory minimum setback, there are mitigation trigger distances for air impacts from the HRA (MM 4.3-5) and noise impacts from construction (MM 4.12-1) and operations (MM 4.12-2). For both noise and air impacts, the mitigation measures establish a default screening distance beyond which construction activities will not exceed the thresholds established. If there are sensitive receptors inside the distances specified there is a presumption, based on the studies, that the air quality emissions or noise levels will exceed applicable thresholds. Applicants may only conduct the identified activities inside those distances with mitigation to meet the applicable standards. The SREIR (October 2020) confirms that distances established by

the noise mitigation measures and by the air quality mitigation measures are measured from the closest edge of the well pad to the property line of the nearest sensitive receptor. See SREIR (October 2020), Vol. 1, at 4.3-158, 4.12-51.

0010-36

The comment states that it is unclear how the various setbacks and triggering distances interact.

The SREIR (October 2020) has provided an updated discussion of how the various setback distances and mitigation triggering distances interact at SREIR (October 2020), Vol. 1, at 4.12-41–48.

0010-37

This comment summarizes and states a conclusion to the preceding comments and does not require a detailed response.

For a detailed response to comments raised regarding setback proposals, please see Responses to Comments 0009-33 and 0009-57 through 0009-89.

0010-38

The comment states that the SREIR should have updated its climate change analysis and that the SREIR should have considered measures to cease or capping issuance of permits or phase out drilling; the impacts of emissions from combustion of produced oil; and that the 2105 FEIR's MM 4.7-4 is inadequate.

Please see GR-1 – Beyond the Scope of the SREIR. Climate change is not one of the five topics required to be addressed in the SREIR. Please also see Response to Comment 0009-98, explaining what constitutes new or significant information under CEQA. Please also see Responses to Comments 0009-102 and 0009-109 through 0009-111, which address similar comments.

The 2015 FEIR contains an extensive discussion of climate change, including the trend of rising temperatures and increasing wildfires, heat waves, and floods, and thoroughly evaluates the impact of the Project as it relates to climate change, including consistency with plans, policies, and regulations adopted for the purposes of reducing greenhouse gas emissions. See SREIR (October 2020), Vol. 3, 4.7, Greenhouse Gas Emissions and Global Climate Change, and SREIR (October 2020), Vol. 7, at 7-263–271. The comment does not raise any issue that is significant new information, because climate change and its indirect effects were known and addressed in the 2015 FEIR. See *Concerned Dublin Citizens v City of Dublin* (2013) 214 Cal.App.4th 1301 (the adoption of new guidelines for evaluation of greenhouse gas emissions was not significant new information requiring further CEQA review because information about the potential effects of those emissions was known and could have been addressed in connection with the certification of the original EIR).

Combustion emissions from eventual combustion of produced hydrocarbons are not properly considered impacts of the Project, and CEQA does not require such "life cycle" analysis. See SREIR (October 2020), Vol. 5, at 7-240–246. The effectiveness of MM 4.7-4, including the third-party offset provision, was established during the litigation involving the 2015 FEIR. The trial court determined that the measure was effective and addressed the validity of the measure at length, and the issue was not taken up on appeal to the higher court. *Vaquero Energy, Inc., et al. v. County of Kern* (2018) Case No. BCV-15-101645, Opinion at 28-31. The comment also states that prohibitions or a "rapid phase out" of drilling activities should have been considered as a means of addressing climate change. Climate change was adequately addressed in the 2015 FEIR, and no new or significant information triggers re-analysis under CEQA here. Certain restrictions on drilling could expose the County to takings liability. Please see Responses to Comments 0009-41 and 0009-89 through 0009-88, which address issues with feasibility of certain measures due to potential takings liability. The 2015 FEIR explains that there is an annual cap on the number of wells that can be permitted as part of the Project. See SREIR (October 2020), Vol. 5, at 7-109. The 2015 FEIR contains a thorough discussion of the issues raised in this comment regarding the analysis of greenhouse gas emissions associated with the Project.

0010-39

The comment states that the SREIR should have updated its climate change analysis to include an evaluation of the effectiveness of the 2015 FEIR's greenhouse gas emissions. Please see GR-1. Climate change is not one of the five topics required to be addressed in the SREIR. See Response to Comment 0009-98, explaining what constitutes new or significant information under CEQA. The comment does not provide any information to show that the mitigation measure is not being enforced or is not effective. CEQA does not require reevaluation of mitigation measures without triggering circumstances. Please see Response to Comment 0009-98 for a description of triggering circumstances. "The purpose of CEQA Guidelines section 15162 is to limit subsequent environmental review after finality of the original environmental review,..." *Willow Glen Trestle Conservancy v. City of San Jose* (2020) 49 Cal.App.5th 127, 133. The effectiveness of the measure has been established.

Please see Response to Comment 0010-38. The 2015 FEIR adequately sets forth the effectiveness of MM. See also Response to Comment 0010-38.

0010-40

Please see GR-1 – Beyond the Scope of the SREIR.. Climate change is not one of the five topics required to be addressed in the SREIR. The 2015 FEIR contains a thorough discussion of climate change mitigation, including as it relates to other resource areas. See SREIR (October 2020), Vol. 3, 4.7, Greenhouse Gas Emissions and Global Climate Change, and SREIR (October 2020), Vol. 7, at 7-263–271. Please see Responses to Comments 0009-102, 0009-109 through 0009-111, and 0009-151 for a discussion of the analysis of climate change and greenhouse gas emissions in the 2015 FEIR and why there is not new information on this topic that requires the analysis from the 2015 FEIR to be revised. The comment also states that the County can mitigate the risk of creating orphan wells by requiring operators to submit a bond that covers the costs of well plugging, abandonment, and site remediation. Regarding orphan and idle wells and indemnity bonding requirements, see Response to Comment 0009-121.

0010-41

The comment is a general summary comment that states mitigating climate change will benefit other resource areas.

Please see GR-1. Climate change is not one of the five topics required to be addressed in the SREIR. The 2015 FEIR contains a thorough discussion of climate change mitigation, including as it relates to other resource areas. See SREIR (October 2020), Vol. 3, 4.7, Greenhouse Gas Emissions and Global Climate Change, and SREIR (October 2020), Vol. 7, at 7-263–271.

0010-42

The comment states that the SREIR must incorporate the findings of a September 2018 report relating to large-scale spills in Kern County in its analysis of Project impacts, and must consider and implement mitigation measures to address spills, including containment requirements, public notification requirements, and a prohibition on the sale of the spilled oil for profit.

The SREIR sufficiently considers recent spills and surface expression events in Kern County. Please see Responses to Comments 0009-123 and 0009-126. The SREIR includes numerous mitigation measures to reduce the frequency and/or consequences of hazardous material spills and soil contamination. See Response to Comment 0009-123. MM 4.9-2 requires operators to provide secondary containment to prevent pollutants from moving offsite and into receiving waters.

0010-43

This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. The comment requests that (1) the public comment period on the SREIR (August 2020) be re-opened; (2) measures be taken to allow Spanish-speaking residents the opportunity to meaningfully participate in the SREIR's public process; and (3) that the Project be rejected.

These requests have been responded to in (1) Response to Comment 0007-2 and GR-3 – Public Process; (2) Response to Comment 0010-2, and (3) Response to Comment 0007-3, respectively. Separate 45-day public comment periods have now been provided for the SREIR (August 2020) and the SREIR (October 2020), as well as one scoping meeting and two public workshops. See Response to Comment 0007-2 and GR-3. Because the public participation process for the SREIR exceeded what is currently required under CEQA, extending the public comment period on the SREIR (August 2020) is not warranted. Spanish translation services were offered at the May 13, 2020, scoping meeting; the August 17, 2020 public workshop on for the SREIR (August 2020); and the November 10, 2020 public workshop on the SREIR (October 2020). See Response to Comment 0010-2. At these meetings, Spanish-speaking residents were able to view the meeting with Spanish closed captions, and had the option to dial into a conference call number to hear live translation of the meeting in Spanish. Although oral comments were not accepted in any language, workshop comments received in Spanish have been translated into English, considered, and responded to; see Section 7.2.2 of this chapter. The reasons for not rejecting the Project were discussed in the 2015 FEIR and SREIR (October 2020)'s analysis of the "No Project Alternative." See SREIR (October 2020), Vol. 3, at 6-17–19; SREIR (October 2020), Vol. 1, at 6-21–24; see also Response to Comment 0007-3. The 2015 FEIR and SREIR (August 2020) explain that the No Project Alternative is environmentally inferior to the Project, which would update the Ordinance with mandatory development standards and conditions that are more protective of the environment and human health than existing regulations. The Project and accompanying mitigation measures require the implementation of dozens of new measures that are based on conservative assumptions and would apply to all oil and gas development activities in the Project Area. The Project offers more protective measures for new oil and gas development than would otherwise apply if the Project was not adopted and current standards for oil and gas activities continued to be implemented.

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11 Western States Petroleum Association

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Suzanne Noble

Director, Production Operations

October 14, 2020

Ms. Cindi Hoover

Planner III

Kern County Planning and Natural Resources Department

2700 M Street, Ste 100

Bakersfield, CA 93301

RE: Supplemental Recirculated Environmental Impact Report

Dear Ms. Hoover:

Please find attached two spreadsheets containing information on Applicant projects reducing Municipal & Industrial (M&I) water demand (including produced water reuse for oil and gas operations and process changes to reduce M&I water demand) and projects to transfer treated produced water to water districts or others for irrigation or other beneficial reuse. This information was collected in February 2020 pursuant to Mitigation Measure 4.17-2, prior to the court of appeal decision which both halted the Kern County oil and gas permitting program and rejected MM 4.17-2. The spreadsheets include projects which were completed and implemented from 2016-2019. Future projects that were then planned are also listed. However, the implementation, timing and effect of future projects, including but not limited to those listed, is not predictable. Depending on economic, permitting and other considerations, future opportunities for such projects are uncertain, as are the amounts of produced water generated by oil and gas production which would be available for such projects.

Should you have any questions please contact me at (661) 312-0884 or via e-mail at snoble@wspa.org

Sincerely,

M&I WATER DEMAND REDUCTION PROJECTS (including produced water reuse for oil & gas operations and process changes to reduce M&I water demand)

Company

M&I Water Demand Reduction (A

Current Future

Aera

Projects implemented 2016-2019:

Lost Hills Water Flooding: Switched from M&I water to produced water for water flooding use

1,241

Midway Sunset Process Changes: Reduced M&I water use for steam production due to operational changes, facility consolidation and closing 3 dehydration and 2 water plants

77

Future projects - permitted or no permit required:

Midway Sunset Process Change: Reuse of produced water for rigs¹

20

California Resources Corporation

Projects implemented 2016-2019:

North Antelope Hills Steam EOR: Reduced M&I water demand by receiving produced water from another operator for steam generation

10

Future projects - permitted or no permit required:

None

Chevron

Projects implemented 2016-2019:

Cymric Soft Water Plant: design and operational process changes to reduce M&I demand at soft water plant

235

Cymric Soft Water Booster Pumps: improved soft water distribution within Cymric, eliminating M&I water transfer from Midway Sunset for McKittrick cogen plant

447

Future projects - permitted or no permit required:

Midway Sunset Soft Water Facilities: pipeline conversion to transfer produced water sent to two soft water plants, replacing M&I water purchased to meet soft water demand²

423

Midway Sunset Footprint Reduction: new pumps to transfer produced water to soft water plant for use in cogen and steam generator plants, eliminating M&I water purchases for steam³

113

(Note: excludes Kern River Cogen Alternative Water Source project, replacing M&I water with treated produced water as cooling water at several cogeneration plants; 82-165 AFY; WDR application submitted to RWQCB but not yet approved)

Sentinel Peak

Projects implemented 2016-2019:

Midway Sunset Water Softening Facility: new water softening facility constructed to recycle produced water for steam generation, reducing M&I water purchases

288

Cymric/Belridge Steaming Operational Changes: increased produced water reuse for steaming and facility optimization, reducing M&I water purchases

672

Future projects - permitted or no permit required:

None

Note:

1. - Internal process change, no permits required, already implemented but currently on hiatus due to market conditions, will resume when conditions improve.
2. - Internal process change, no permits required, scheduled for completion September 2020
3. - Internal process change, no permits required, scheduled for completion October 2020

(FY)

at permitted

PROJECTS TO TRANSFER TREATED PRODUCED WATER TO WATER DISTRICTS OR OTHERS FOR IRRIGATION OR OTHER BENEFICIAL REUSE

Company

Produced Water Provided (AFY)

Current Future

California Resources Corporation

Existing transfers:

Produced Water Transfer from Kern Front Field to Cawelo and North Kern Water Districts for irrigation use 10,200

Projects implemented 2016-2019:

Produced Water Transfer from Kern Front Field: Increased produced water transfers to Cawelo and North Kern Water Districts for irrigation use 6,000

Future Projects - permitted or no permit required:

None

(Note: excludes Mt. Poso Field water deliveries to Kern Tulare Water District for irrigation use; 3,000 AFY; WDR application being prepared in coordination with water district staff but not yet submitted)

Chevron

Existing transfers:

Produced Water Transfer to Cawelo Water District for agricultural use, per Central Valley RWQCB WDR R5-2012-0058 22,760 3 year average 2017-2

Produced Water Transfer to San Ardo Field for aquifer recharge, per Central Coast RWQCB WDR R3-2005-0070 1,400 3 year average 2017-2

Projects implemented 2016-2019:

None

Future projects - permitted or no permit required:

None

E&B Resources

Projects implemented 2016-2019:

Poso Creek/Sherwood Reservoirs: Produced water transfer from McVan facility to Sherwood Reservoirs for irrigation use per 2019 WDR 1,650

Future projects - permitted or no permit required:

None

019
019

0011-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment provides information on projects to reduce municipal and industrial water demand for oil and gas operations and/or transfer treated produced water to water districts for irrigation and other beneficial reuse.

The SREIR (October 2020) explains that, while this information shows that it may be possible to encourage reduced municipal and industrial water use, it does not demonstrate that reduction measures can be feasibly implemented in a manner that will reduce Project water supply impacts to a predictable extent and on a widespread basis throughout the Project Area. See SREIR (October 2020), Vol. 1, at 4.9-202.

0011-2

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

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California Resources Corporation

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October 20, 2020

Kern County Planning and
Natural Resources Department
Attn: Cindi Hoover, Lead Planner
2700 M Street, Suite 100
Bakersfield, CA 93301
(661) 862-8629
hooverc@kerncounty.com

Re: Comments on Draft Supplemental Recirculated Environmental Impact Report for Revisions to Title 19 – Kern County Zoning Ordinance 2020 (A), Focused on Oil and Gas Local Permitting (SCH # 2013081079)

Dear Ms. Hoover:

This letter addresses the geological characteristics and drilling practices in Kern County that affect the feasibility of utilizing horizontal drilling in order to cluster oil and gas wells, which is evaluated in the Supplemental Recirculated Environmental Impact Report as a potential mitigation measure for agricultural resource impacts.

My name is Alejandro Velasco, I have been an oilfield professional since 1998, when I joined a major oilfield service company. I have vast experience in drilling, both in domestic and international projects. I have participated in the well construction process of High Temperature/High Pressure (HTHP) projects in the north of Mexico, of large horizontal prospects in Permian Basin, and for the last ten years I have had the opportunity of working in the drilling department of a major operator in the state of California. During this time I have had the opportunity of drilling quite complex projects in the San Joaquin Basin, a challenging area with tectonically stressed formations that have created a very unique environment in terms of field development: faults, traps, and stacked up pay zones are situations that my department deals with on regular basis, and we continuously work with the subsurface team to find the best possible solution to develop our many mature fields as efficiently as possible, while managing the impact of our activity to any neighboring industry.

Oil and gas operators are incentivized to develop resources in an efficient, cost-effective and prudent manner. In much of Kern County, depending on geological conditions, horizontal drilling is not technologically or economically feasible. Faulting and folding in Kern County has created more complex geometry with less lateral continuity than in most other oil and gas plays in the United States. In the Project Area, as defined in the Environmental Impact Report (EIR) for the Kern County Oil & Gas Ordinance, most reservoirs are contained within highly complex geologic settings, largely dominated with faults and traps, with producible reservoirs in isolated small pockets that are pinched out and discontinuous laterally.

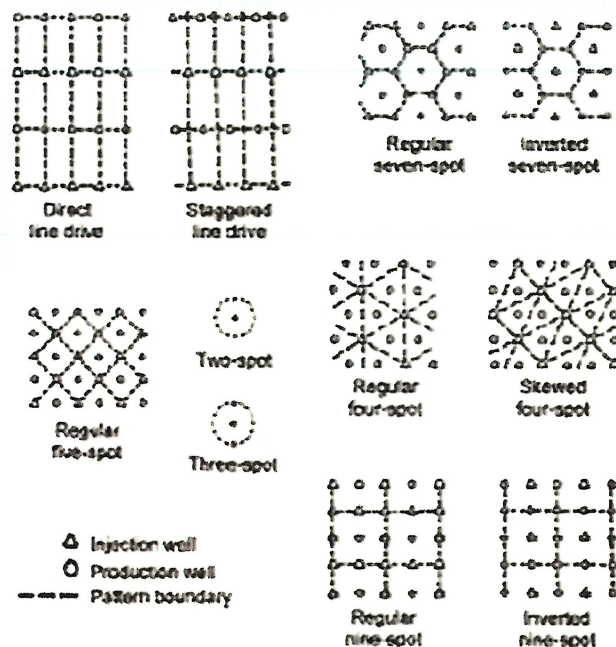
0012-1

0012-2

Moreover, the current drilling equipment available in California is not capable of making near-right angle turns from the vertical initiation of the bore to a horizontal or near-horizontal orientation. Even where the geology is amenable to drilling laterally, a well must be deep enough to accommodate a gradual horizontal turn. For these reasons, requiring horizontal drilling regardless of the underlying geologic structures or well depth would substantially limit the feasibility of the drilling program and ability to secure the optimal completion geometry. Mandatory well clustering would render many projects uneconomic or inefficient, therefore limiting the resources operators could otherwise produce.

In addition, the majority of future wells drilled in Kern County are expected to be in established fields where Enhanced Oil Recovery (EOR) methods are used in shallow, closely spaced wells. EOR imposes strict functional constraints on well spacing. When EOR methods are utilized, precise well spacing is dictated by the need to mobilize and collect hydrocarbons from production wells surrounding the injection well. Typical EOR geometries are illustrated below. Reconfiguring the distribution of EOR wells in tighter clusters is technologically infeasible. Moreover, EOR is used primarily in older fields such as in Lost Hills, Belridge and other fields with shallow reservoirs. Clustering wells is not geometrically feasible at a shallow target depth that would require sharp turns both vertically and horizontally to reconfigure EOR wells. In addition to the technical infeasibility of achieving effective EOR patterns, excessively sharp curves increase the probability of casing failure due to frictional heat and side loading.

EOR Injection and Production Well Configurations



By contrast, in some portions of Kern County, minerals are deposited in relatively homogeneous horizontal layers over a large area, so that the drill bore can gradually be

deviated laterally to access the formation, without hitting a fault or trap. Locations with this type of geology include the North Shafter field near Wasco. In those regions, horizontal drilling from larger clustered well pads is routinely utilized by agreement among surface and mineral owners.

Multi-well pads are also widely utilized in other oil and gas jurisdictions in the U.S., including the Permian Basin of west Texas and southwest New Mexico, the Bakken Play of North Dakota and the Niobrara Play of Colorado. In these regions, geological formations are more homogeneous and producible reservoirs are laid out in flat and long intervals. In addition, there are few operating EOR projects in these areas.

Horizontal drilling requires a longer drilling path and duration to reach the target reservoir as compared to a vertical well. For example, it takes 30 days to drill a 15,000 foot well. Longer drilling periods mean increased levels of construction-related emissions, while emissions from later phases of the well's productive life would be unchanged. Horizontal drilling not only requires longer drilling times which increase emissions, but also tends to require greater power. Operation of larger, higher horsepower engines for horizontal drilling results in higher emissions than vertical drilling for an equivalent distance. Moreover, the engines utilized in drilling operations come in discrete sizes. As a result, transitioning to the next larger size of engine, in order to achieve a given increase in power, may result in a disproportionate increase in emissions. While there would be some reduction of emissions associated with constructing fewer access roads for consolidated multi-well pads than for separate pads, well pad preparation and construction emissions are negligible compared to emissions from drilling, and primarily consist of PM₁₀. Therefore, consolidating wells on a single pad rather than separate pads would have little effect on overall emissions and, in particular, would not reduce NOx emissions. Moreover, most future oil and gas production in Kern County is expected to occur in established oil fields with access roads already in place, where the primary effect on emissions will be from incremental horizontal drilling. Single well pads in mature fields rarely require new roads with accompanying surface disturbance, as operations utilize existing roads already connected to the sites.

Clustering multiple wells on one pad would also create more disturbance to land and habitat to make room for Simultaneous Operations (SIMOPS). Overlapping drilling, completion and facility operations would require increased equipment including drilling rigs, completion rigs, construction cranes, heavy truck and loaders, as well as resulting in increased personnel traffic, within a confined area on and around the multi-well pad. The higher density of activity increases the risk and potential magnitude of incidents. Drilling laterally from a multi-well pad in a location with highly faulted geology under tectonic stress can also expose operations to greater risk. Penetrating unstable formations at the incorrect angle can lead to borehole breakout with a potential unplanned sidetrack and/or loss of the well.

For the same reasons, a mandatory 2,500 foot setback requirement would be technologically infeasible where reservoirs are too shallow to make a horizontal turn, and not wide enough to

0012-5
Cont'd

0012-6

0012-7

0012-8

0012-9

be accessed vertically from the 2,500 foot setback point. As a result, a setback requirement would effectively prohibit drilling in many locations, due to the shallow, discontinuous and uneven distribution of hydrocarbons that predominate in Kern County. Where reservoirs are deep enough to allow a horizontal turn, additional drilling would be required. For example, to reach a reservoir at a total vertical depth of 8,100 feet with a 2,500 foot setback, the well must descend vertically for a minimum of 7,000 feet to the “kick off point” for a gradual turn to horizontal. To reach the target, the borehole would extend for a total of 9,900 feet (total measured depth, i.e., vertical plus angled plus horizontal segments), representing 1,900 feet of additional footage drilled compared to 8,100 feet for a well drilled vertically to the same target, with correspondingly increased drilling time and emissions.

Mineral ownership in Kern County is often divided into many fractional interests in any given parcel. Where surface and mineral ownership are severed, one person may own the surface while the mineral ownership is divided among multiple different individuals and companies. In some cases, a parcel may have 10, 20, 30 or more different mineral owners. Some oil and gas fields have thousands of mineral owners.

Many mineral leaseholds in Kern County are modest in size, limiting the quantity of resources that can be accessed by horizontal drilling across a single parcel. The distribution of mineral lease sizes for California Resource Corporation (CRC) in Kern County is shown below. Over half of the mineral leases are less than 40 acres in size, and 20% of the leases are less than 20 acres. Only 7.26% are 640 acres or greater, and these tend to be located in old established oil fields such as Elk Hills, Midway Sunset, Cymric, Kern River where interests have been consolidated over time.

California Resources Corporation Mineral Lease Sizes in Kern County

Mineral Lease Size (Acres)	# Leases	% of Total
640 and greater	468	7.26
320 – 639.9	501	7.77
160 – 319.9	945	14.66
80 – 159.9	1,208	18.73
40 – 79.9	1,226	19.01
20 – 39.9	750	11.63
< 20	1,350	20.93


Genuinely horizontal drilling is relatively rare in Kern County, consistent with the widespread complex geological structures that are typically unfavorable. For this purpose, directional drilling which is only slightly deviated from vertical must be distinguished from horizontal drilling that extends laterally. In a dataset of 9,803 wells drilled by CRC from 2000-2020, 46.5% were vertical wells, 42.3% directional wells, and 11% were drilled horizontally. The average inclination for CRC’s vertical and directional wells was 10.8 degree and 18.3 degree respectively, compared to an average inclination of 82.09 degrees for horizontal wells capable of reaching laterally distributed resources. 53% of the directional wells had an inclination of less than 20 degrees. The small deviation from vertical in the category of directional wells is mainly driven by geological constraints and reservoir configurations which

are laterally discontinuous. Accordingly, such directional wells are properly considered as distinct from the laterally deviating horizontal wells that can reach more distant resources.

California Resources Corporation Wells Drilled in Kern County 2000-2020

Well Type	% Wells	Average Inclination (degrees)	Average Length of Vertical Section (ft)	Average True Vertical Depth (ft)
Vertical	46.5	10.79	653.58	4712.07
Directional	42.3	18.32	756.55	4735.46
Horizontal	11	82.09	2566.46	4633.29

Regards,



Alejandro Velasco

ALSTON & BIRD

333 South Hope Street, 16th Floor
Los Angeles, CA 90071-1410
213-576-1000 | Fax: 213-576-1100

Matthew C. Wickersham

Direct Dial: 213-576-1185

Email: matt.wickersham@alston.com

September 14, 2020

Chair Kelly Long and Members of the Ventura County Board of Supervisors
Hall of Administration
800 South Victoria Avenue
Ventura, California 93009

Re: September 15, 2020 Agenda Item No. 41: Certification of the 2040 General Plan Final Environmental Impact Report and Adoption of the 2040 General Plan (Planning Division Case No. PL17-0141)

Honorable Members of the Board:

On behalf of California Resources Corporation, we appreciate the opportunity to submit the following report regarding Agenda Item 41, continued from September 1, 2020 Items 34, 35 and 39.

The General Plan Update that the Board is considering will have far reaching impacts on this county's economic health and wellbeing. A number of public comments point to two recent health studies on impacts to birth outcomes from oil and gas operations, in support of the setback requirements proposed in the General Plan Update, and suggest that the current 1,500 foot setback proposed in Mitigation Measure PR-1 should be increased to 2,500 feet,. However, ***neither study provides any reliable evidence that abnormal birth outcomes are caused by exposure to oil and gas drilling.***

Dr. Garabrant reviewed the recent studies by Tran, et al. and Gonzales, et al. referred to in public comments regarding the General Plan Update. Dr. Garabrant is an Emeritus Professor of Epidemiology and Occupational Medicine at the University of Michigan School of Public Health, and Emeritus Associate Professor of Medicine at the University of Michigan School of Medicine. He has extensive experience in both the field of medicine and environmental science, and has published numerous peer-reviewed articles on environmental exposure and human health. Attached as Exhibit 1 is a report from Dr. David Garabrant that highlights the extreme flaws and problematic assumptions contained within both studies.

These studies defy common sense and should not serve as support for a decision that will put Ventura County citizens out of work and local companies out of business.

Sincerely,



Matt Wickersham

Enclosure

Alston & Bird LLP

www.alston.com

Atlanta | Beijing | Brussels | Charlotte | Dallas | London | Los Angeles | New York | Raleigh | San Francisco | Silicon Valley | Washington, D.C.

LEGAL02/40058479v2

September 15, 2020 Agenda Item No. 41: Certification of the 2040 General Plan Final
Environmental Impact Report and Adoption of the 2040 General Plan (Planning Division
Case No. PL17-0141)
September 14, 2020
Page 2

cc: Jeffrey Dintzer, Alston & Bird
Adam Smith, California Resources Corporation
Bruce Carter, California Resources Corporation

EXHIBIT 1

[California Resources Corporation Sept. 14, 2020 Comment Letter]

DAVID H. GARABRANT, P.L.L.C.

3063 GEDDES AVENUE
ANN ARBOR, MICHIGAN 48104

734-646-2692

DAVID H. GARABRANT, M.D., M.P.H.

Mr. Jeffrey Dintzer
Alston & Bird, LLC
333 S. Hope Street, Suite 1600
Los Angeles, CA 90071

September 12, 2020

Dear Mr. Dintzer,

At your request, I have reviewed the recent publications regarding residential proximity to oil and gas development (OGD) and birth outcomes in California:

Gonzalez DJX, Sherris AR, Yang W, Stevenson DK, Padula AM, Baiocchi M, et al. Oil and gas production and spontaneous preterm birth in the San Joaquin Valley, CA: A case-control study. *Environ Epidemiol.* 2020;4(4):e099. Epub 2020/08/25.

Tran KV, Casey JA, Cushing LJ, Morello-Frosch R. Residential Proximity to Oil and Gas Development and Birth Outcomes in California: A Retrospective Cohort Study of 2006-2015 Births. *Environ Health Perspect.* 2020;128(6):67001. Epub 2020/06/04.

My Qualifications

I am Emeritus Professor of Epidemiology and Occupational Medicine at the University of Michigan School of Public Health, and Emeritus Associate Professor of Medicine at the University of Michigan School of Medicine. I am board certified in occupational and environmental medicine and internal medicine. I am also qualified as a specialist in the field of epidemiology, especially as it relates to the study of diseases related to exposures to chemical agents. While I have been on the faculty of the University of Michigan, I have served as Director of Occupational Medicine (1988-94), head of the Occupational Health Program (1992-95), Director of the Center for Occupational Health and Safety Engineering (1990-95), Director of the Occupational & Environmental Epidemiology program (2001-2007), and Founding Director of the Risk Science Center (2003-2017). My research since 1980 has focused on the long-term health effects of chemicals on humans and I have published over 360 research articles, book chapters, and abstracts related to this area. My full curriculum vitae is attached.

Overview of Studies of the Relationship Between Oil and Gas Drilling and Birth Outcomes

The central issue in looking for associations between oil and gas drilling (OGD) and birth outcomes is assessing the temporal relationship between the exposure of the pregnant woman to emissions from OGD and the risk of an abnormal birth outcome. The birth outcomes of interest in these studies (term birth weight [tBW], low birth weight [LBW], preterm birth [PTB], and small for gestational age [SGA]) are defined in part by the gestational age of the fetus at the time

the birth outcome is observed ¹. In order for an association between an OGD-related exposure and an abnormal birth outcome to be interpretable with respect to causation, the chemical agent must be known to be capable of causing the birth outcome at the concentrations observed and the exposure must occur during a gestational time when the fetus is susceptible to the effect.

Exposure Assessment

In order to find reliable associations between exposure to OGD-related emissions² and abnormal birth outcomes it is essential to have accurate information on these emissions, including specific chemical and non-chemical constituents, concentration, exposure pathways (air, water, soil evaporation), and accurate temporal information on when the emissions were present at the location of the pregnant mother. In addition, since air pollutant concentrations are dependent on wind direction and distance, meteorological information (with accurate temporal information) is essential. Since exposure to water contaminants may be dependent on hydrogeological factors, hydrogeological information is essential for some emissions.

There are two approaches to assessing exposures. The first is to model exposures at receptor locations (i.e., the residential location of the pregnant woman during gestation) based on measured emissions from the OGD sites, air dispersion modeling, and hydrogeological modeling of groundwater movement and evaporation. The second is to measure the participants' exposures by personal monitoring techniques. The first approach does not account for exposures from sources other than the OGD site and is inherently limited because it cannot evaluate the participant's true exposure from all sources. While the first approach may be appropriate to

¹ *Birth outcomes evaluated in Gonzalez 2020 and Tran 2020*

- Gestational age is the elapsed time between the last menstrual period and the date of interest.
- Full term birth is a pregnancy that completes 39 weeks of gestation.
- Term birth weight (tBW) is the birth weight (in grams) among pregnancies that complete ≥ 37 weeks of gestation.
- Low birth weight (LBW) is a birth < 2500 grams (regardless of the gestational age).
- Preterm birth (PTB) is a birth occurring before 37 weeks (< 37 weeks) of gestation.
- Small for gestational age (SGA) is a birth weight less than the US sex-specific 10th percentile of weight for each week of gestation.

² *The potential emissions from OGD activities include:*

- Air pollutants:
 - particulate matter (PM) with an aerodynamic diameter of < 2.5 μm (PM_{2.5})
 - diesel PM
 - nitrogen oxides (NO_x)
 - secondary ozone formation
 - mercury
 - volatile organic compounds (VOCs), including benzene, toluene, ethylbenzene and xylene (BTEX) from truck traffic, drilling, hydraulic fracturing, production, and flaring
- Water contaminants that can contaminate potable water via leaks and spills or evaporate:
 - gas-phase hydrocarbons
 - chemicals mixed in drilling fluids
 - naturally occurring salts, metals, and radioactive elements within shale that surface with wastewater
 - recovered oil and gas
- Noise pollution associated with well pad construction, truck traffic, drilling, pumps, flaring of gases, and other processes
- Light pollution from night-time activities

evaluate dispersion of environmental pollutants in surrounding areas, it is not appropriate to evaluate adverse health effects at the personal level because of potential exposure misclassification.

Neither of the studies at issue (Gonzalez, 2020; Tran, 2020) has adequate information on emissions from OGD sites, with reliable temporal information, to provide any reliable estimate of any study participant's exposure at any point during gestation. Moreover, neither of the studies made any measurements of any participant's personal exposure at any point during pregnancy. Thus, neither study can establish that any pregnant woman was exposed to any specific agent from OGD at any specific time during gestation. Instead of measuring exposures, both studies simply calculated the distance from each pregnant woman's residence to OGD sites and created a summary score of how many OGD sites were within a specified radius. These scores are not reliable indicators of exposure of any pregnant woman to any specific chemical or physical agent from OGD sites, nor do they account for exposures from other sources such as highways, vehicle traffic, agricultural activities, or other industrial and commercial activities. It is unknown whether these exposure scores accurately reflect true exposures.

Exposure studies that have examined the relationships among outdoor air, indoor air, and personal air show that volatile organic compounds (VOCs), metals, PM_{2.5}, NO₂, and other pollutants are often higher in personal air than in indoor air, and are often higher in indoor air than in outdoor air (Adgate, 2007; Adgate, 2002; Baxter, 2013; Bonanno, 2001; Clayton, 2002; Evans, 2000; Janssen, 1998; Rojas-Bracho, 2000; Sexton, 2004; Shrestha, 2019; Wallace, 1986; Wallace, 1989; Wallace, 1988). In addition, outdoor air concentrations are often poorly correlated with personal air concentrations. There are many reasons for these relationships. First, personal air concentrations are affected by smoking, use of household chemicals (paints, furniture polish, spot removers, waxes, window cleaner, ammonia, pesticides, etc.), cooking (VOCs, particulates, NO₂), personal use of gasoline powered tools (lawnmowers, leaf blowers, edgers, etc.), occupational exposures, and other sources. Indoor air is affected by heating and air conditioning systems, ventilation rates, attached garages (gasoline vapors), wood and coal stoves (VOCs, particulates, PM_{2.5}, NO₂), indoor pets, whether windows are open or shut, the age of the dwelling, single versus multiple family dwellings, cleaning habits (sweeping, vacuuming, dusting), and other factors. Outdoor air is affected by local traffic, freeways, wildfires, wind and weather conditions, temperature, season, nearby industries, agriculture, construction, and other factors. Because of these differences, outdoor air concentrations cannot be assumed to reliably reflect any individual's personal exposure to any pollutant. The assumption in the Tran and Gonzalez studies that exposure scores based on the distances to OGD sites accurately reflects any individual's true personal exposure to any of the agents at issue is unfounded, has not been tested by any measurements, and is unlikely to be true.

Tran (Tran, 2020) counted the number of active oil and gas wells within 1 km of the study participant's address and combined this with monthly production volume (barrels of oil and oil equivalent, or BOE) to create an exposure index during each trimester of gestation. Exposure to production volume of active wells was then categorized as a) no active wells, b) 1-100 BOE/day (moderate), and c) more than 100 BOE/day (high). Tran also counted the number of inactive wells within 1 km of the participant's address and categorized exposure as a) no

inactive wells, b) one inactive well, c) 2-5 inactive wells, or d) 6 or more inactive wells. There were no assessments or measurements of any specific chemical or physical agent.

Gonzalez (Gonzalez, 2020) counted the number of wells within 10 km of the mother's residence that were in preproduction or production during each trimester of gestation, then estimated exposure to each well as the inverse of the distance squared ($\text{exposure} = 1/\text{distance}^2$). These "exposures" were then summed for each trimester of each pregnancy and were categorized into exposure tertiles (tertiles 1, 2, and 3). Births without exposure in each trimester comprised a separate unexposed category (tertile 0). There were no assessments or measurements of any specific chemical or physical agent.

Neither Tran nor Gonzalez validated their exposure metrics to demonstrate that they were related to measured exposures at any residential site or, more importantly, to the actual exposures of any study participants. Both studies ignored meteorology and whether any participant's residence was upwind or downwind of any wells. Both studies ignored relevant hydrogeology and whether participants' residences were up-gradient or down-gradient from the wells. Thus, the exposure metrics used by Tran and Gonzalez reflect only their modeling assumptions and are not validated by any exposure measurements.

Birth Outcomes Assessment

The birth outcomes at issue are not independent of each other, as they based on assessing only two things: the duration of gestation and the weight at birth. These measures are compared to the frequency distributions in the general population to determine whether the duration of gestation is normal (PTB); whether the birth weight is low (LBW); whether for gestations of ≥ 37 weeks the birth weight is low (tBW); and whether the birth weight is lower than newborns of the same gestational age (SGA). These outcomes are correlated in many ways: preterm births (PTB) have low birth weights (LBW), newborns with low term birth weight (tBW) also have low birth weight (LBW), and newborns that are small for gestational age (SGA) have low birth weights (LBW) and low term birth weights (tBW). Because the three measures derived from birth weight (LBW, tBW, SGA) are all related, it is inappropriate to report them as though they are independent measures of adverse effects.

Covariates and Alternate Causes of Abnormal Birth Outcomes

Numerous factors may adversely affect birth outcomes, including maternal age, smoking, drug use, alcohol, infections during pregnancy (rubella, Zika), pharmaceuticals, malnutrition, poverty, lack of access to health care, prenatal care, maternal disease, pregnancy complications (gestational diabetes, hypertension), and genetics. Tran adjusted for individual level covariates of the infant (sex, month and year of birth) and the mother (age, race/ethnicity, educational attainment, prenatal care, and parity) and for area-level variables of urban/rural status, modeled NO_2 concentration, and income concentrations (derived from the census tract of residence). Gonzalez adjusted only for maternal age, race/ethnicity, educational attainment, parity, and birth year.

Thus, neither study assessed confounding due to smoking, drug use, alcohol, infections during pregnancy, pharmaceuticals, malnutrition, poverty, lack of access to health care, maternal disease, pregnancy complications, or genetics. The extent to which the observed associations

between OGD proximity and birth outcomes were biased by these potential confounders cannot be determined, and there is no reason to believe these factors did not cause spurious associations.

Results - Gonzalez 2020

Gonzalez reported only one birth outcome – spontaneous preterm birth. They reported a statistically significant increased risk of preterm birth for exposure tertile 3 during the gestational weeks 28-31, only in Hispanic and non-Hispanic Black women and only in women with < 12 years of education. There was no association between preterm birth during gestational weeks 20-27 or weeks 32-36 and any category of exposure to oil wells. In sensitivity analyses that examined different categories of distance to wells, there was no association between preterm birth and wells within 3 km (eTable 13). The positive association was essentially uniform in analyses that included wells within 5, 10, and 15 km. These analyses indicated that close wells (within 3 km) were not associated with preterm births, whereas far away wells were, regardless of whether they were within 5, 10, or 15 km. The authors did not explain how distant wells could affect birth outcomes while more proximal wells did not, nor did they provide any explanation for how wells might adversely affect only Hispanic and non-Hispanic Blacks but not non-Hispanic Whites, or why the associations were seen only in births to women of low education. These paradoxical and unexplained findings raise serious questions about the reliability of the Gonzalez study.

The major weaknesses of the Gonzalez study include no measurements of exposure to any specific agent, lack of assessment of confounding by numerous important causes of birth outcomes, and unexplained inconsistencies in the relationship between the exposure metric and preterm birth.

Results - Tran 2020

Tran reported statistically significant associations between well production volume and low birth weight (LBW) for moderate exposure (1-100 BOE/day) but not high exposure (more than 100 BOE/day). When participants were stratified by urban versus rural residence, there was a statistically significant positive association between LBW and high exposure in rural participants, but no positive association between LBW and high exposure in urban participants. In fact, among urban participants, there was a statistically significant inverse association (OR = 0.93, 95% CI 0.88-0.98) (Table S4) between LBW in trimester 3 and high exposure. These unexplained inconsistencies in findings for LBW argue against a causal interpretation. It is unexplained and unlikely to be true that OGD emissions cause LBW in rural births yet protect against them in urban births.

Tran reported no statistically significant positive association for preterm birth (PTB) in any trimester, at either moderate or high exposure, in either rural or urban participants. In fact, among urban participants, there was a statistically significant inverse association (OR = 0.82, 95% CI 0.77-0.88) (Table S5) between PTB in trimester 3 and high exposure. The authors did not explain how high exposure to OGD emissions might protect against PTB in urban participants, nor is this likely to be true. These results directly contradict the positive association reported by Gonzalez (described above) and the discrepancy between these two studies has no evident explanation other than that the results in Gonzalez may simply be spurious.

Tran reported statistically significant positive associations between small for gestational age (SGA) births and high exposure in rural participants, but not for moderate exposure in rural participants. Among urban participants, there were statistically significant associations between both moderate and high exposure and LBW, but the association was no stronger for high exposure than for moderate exposure. The associations seen in urban participants were quite small (odds ratios between 1.03 and 1.04) even though they were statistically significant and showed no evidence of dose-response. The associations seen in rural participants were stronger in the high exposure group and showed evidence of dose-response. The differences between the rural and urban participants were unexplained by the authors.

Tran reported no statistically significant differences in term birth weight (tBW) in either moderate or high exposure for among urban participants. Among rural participants tBW increased slightly in the moderate exposure group, then decreased significantly in the high exposure group. The differences between the rural and urban participants were unexplained by the authors.

Overall, the Tran study provided no association between OGD related exposures and the duration of gestation (PTB). Tran reported no consistent findings of adverse effects of OGD related exposures on the three measures derived from birth weight (LBW, tBW, SGA). Tran made no attempt to evaluate or explain the reasons for inconsistencies in the results for these three measures (LBW, tBW, SGA), nor did they make any attempt to determine which of these birth outcomes, if any, were significantly associated with OGD related exposures after adjusting of the other outcomes.

The statistically significant findings rarely showed evidence of increasing strength with increasing exposure (i.e., dose response) and the differences between urban and rural participants often were greater than the underlying associations. The reasons for these urban/rural differences were unexplained by the authors and they suggest that unmeasured confounders associated with urban/rural status were more strongly associated with birth outcomes than were the exposures.

Conclusions

Neither the Tran nor the Gonzalez study provides any reliable evidence that abnormal birth outcomes are causally associated with exposure to oil and gas drilling. Both studies have inadequate and unvalidated estimates of exposure that provide no reliable assessment of any study participant's exposure to OGD related chemicals or physical agents. Neither study assessed any participants' personal exposures from other sources, or from all sources combined (including OGD and other sources), to any chemical or physical agent, nor could they assess whether personal exposure from any source played any causal role in any birth outcome.

Neither study adequately controlled for other known causes of abnormal birth outcomes and neither study provides assurance that the reported results are not spurious because of confounding from these other factors. The associations reported in these studies may simply reflect unjustified modeling assumptions about their exposure metrics, uncontrolled confounding by other exposures, and unjustified assumptions about a lack of confounding by unmeasured covariates rather than causal relationships.

Because of these limitations these studies should not be relied upon in assessing the health risks to California residents from oil and gas development. Please feel free to contact me if any further comments or explanations are needed.

Sincerely,



David H. Garabrant, MD, MPH
Emeritus Professor of Occupational Medicine and Epidemiology,
The University of Michigan
Ann Arbor, Michigan

References

1. Adgate JL, Mongin SJ, Pratt GC, Zhang J, Field MP, Ramachandran G, et al. Relationships between personal, indoor, and outdoor exposures to trace elements in PM(2.5). *Sci Total Environ*. 2007;386(1-3):21-32. Epub 2007/08/19.
2. Adgate JL, Ramachandran G, Pratt GC, Waller LA, Sexton K. Spatial and temporal variability in outdoor, indoor, and personal PM2.5 exposure. *Atmospheric Environment*. 2002;36:11.
3. Baxter LK, Dionisio KL, Burke J, Ebel Sarnat J, Sarnat JA. Exposure prediction approaches used in air pollution epidemiology studies: key findings and future recommendations. *J Expos Science Environ Epidemiol*. 2013;23(6):654-9.
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5. Clayton CA, Pellizzari ED, Quackenboss JJ. National Human Exposure Assessment Survey: analysis of exposure pathways and routes for arsenic and lead in EPA Region 5. *J Expo Anal Environ Epidemiol*. 2002;12(1):29-43.
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9. Rojas-Bracho L, Suh HH, Koutrakis P. Relationships among personal, indoor, and outdoor fine and coarse particle concentrations for individuals with COPD. *J Expo Anal Environ Epidemiol*. 2000;10(3):294-306. Epub 2000/07/26.
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11. Shrestha PM, Humphrey JL, Carlton EJ, Adgate JL, Barton KE, Root ED, et al. Impact of Outdoor Air Pollution on Indoor Air Quality in Low-Income Homes during Wildfire Seasons. *International journal of environmental research and public health*. 2019;16(19). Epub 2019/09/25.

12. Tran KV, Casey JA, Cushing LJ, Morello-Frosch R. Residential Proximity to Oil and Gas Development and Birth Outcomes in California: A Retrospective Cohort Study of 2006-2015 Births. *Environ Health Perspect.* 2020;128(6):67001. Epub 2020/06/04.
13. Wallace L, Pellizzari E, Hartwell T, Zelon H. Concentrations of 20 volatile organic compounds in the air and drinking water of 350 residents of New Jersey compared with concentrations in their exhaled breath. *Journal of Occupational Medicine.* 1986;28(8):603-8.
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15. Wallace LA, Hartwell TD, Whitmore R, Pellizzari ED. The California team study: breath concentrations and personal exposures to 26 volatile compounds in air and drinking water of 188 residents of Los Angeles, Antioch, and Pittsburg, CA. *Atmospheric Environment.* 1988;22(10):2141-62.

ATTACHMENT

David H. Garabrant, MD, MPH, MS, FACOEM, FACPM
 Emeritus Professor of Occupational Medicine and Epidemiology
 The University of Michigan School of Public Health

Education and Training

High School: Westfield High School
 Westfield, New Jersey
 1965 – 1968

Undergraduate: Tufts University
 Medford, Massachusetts. Sept 1968 – June 1972
 B.S., Chemical Engineering, June 1972

Graduate: Tufts University School of Medicine
 Boston, Massachusetts. Sept 1972 – June 1976.
 M.D. received June 1976

Internship: Medicine Intern
 Georgetown University Hospital
 Washington, D.C.
 July 1976 – June 1977

Fellowship Internal Medicine, Ambulatory Care
 Georgetown University Hospital
 Washington, D.C.
 September 1977 – June 1978

Residency: Occupational Medicine
 Harvard School of Public Health
 Boston, Massachusetts
 September 1978 – June 1980
 M.P.H. degree received June 1979
 M.S. in Physiology (Occupational Medicine) received June 1980

Internal Medicine
 Boston University Medical Center
 Boston, Massachusetts
 July 1980 – June 1981

Certification and Licensure

Licensure District of Columbia, 1978, (Certificate - 10775) (inactive)
 Maryland, 1977, (Certificate - D-20626) (inactive)
 Massachusetts, 1978, (Certificate - 42987) (inactive)
 California, 1982, (Certificate - G-47344) (inactive)
 Michigan, 1989, (Certificate - 054132) (active)

Board Certification Internal Medicine, 1981
 Preventive Medicine, 1982
 Subspecialty certification, Occupational Medicine, 1982

Academic, Administrative, and Clinical Appointments

Teaching Assistant in Medicine, Boston University School of Medicine, July 1980 – June 1981

Assistant Professor, University of Southern California School of Medicine, August 1981 – June 1988

Associate Professor, University of Southern California School of Medicine, June 1988 – November 1988

Associate Professor, University of Michigan School of Public Health, December 1988 – June 1996

Associate Professor of Medicine, Department of Medicine, University of Michigan School of Medicine, December 1989 – September 2002

Visiting Faculty, University of Indonesia School of Medicine, August 1995 – June 1996 (Sabbatical)

Professor of Occupational Medicine, University of Michigan School of Public Health, June 1996 – September 2007

Associate Professor, Department of Emergency Medicine, University of Michigan School of Medicine, September 2002 – September 2007.

Professor of Epidemiology, University of Michigan School of Public Health, June 2003 – September 2007

Founding Director, University of Michigan, Center for Risk Science and Communication, 2004 – 2018.

Emeritus Professor of Occupational Medicine and Epidemiology, University of Michigan School of Public Health, September 2007 – present

Emeritus Associate Professor of Emergency Medicine, University of Michigan School of Medicine, September 2007 – present

Honors And Awards

Graduated Magna Cum Laude, Tufts University, 1972.

Tufts University, Tau Beta Pi Engineering Honor Society, 1971

Awarded Training Grant for Study and Research in Occupational Medicine from the National Institute for Occupational Safety and Health, 1978, renewed 1979

Recipient of Preventive Oncology Academic Award, National Cancer Institute, 1987–1992

Chair, Safety and Occupational Health Study Section, National Institutes of Health, 1995–96.

Excellence in Research Award, University of Michigan School of Public Health, April 28, 2006

Top Docs 2006. Hour Detroit Magazine

Emeritus Professor, University of Michigan, September 2007

Research Excellence Award. University of Michigan Risk Center, October 16, 2007.

Franzblau, A., L. Zwica, K. Knutson, Q. Chen, S.-Y. Lee, B. Hong, P. Adriaens, A. Demond, **D. Garabrant**, B. Gillespie, J. Lepkowski, W. Luksemburg, M. Maier, and T. Towey, 2009, "An Investigation of Homes with High Concentrations of PCDDs, PCDFs and/or Dioxin-Like PCBs in House Dust," *J. Occupational and Environ. Hygiene*, 6:188-199. Best Indoor Environmental Quality Paper Award for 2009 awarded by American Industrial Hygiene Association.

Memberships in Professional Societies

American Occupational Medical Association 1982–88. Elected to fellowship, 1986

Western Occupational Medical Association, 1982–88

Board of Directors, 1984–88

Chairman, Educational Affairs Committee, 1986–88

American College of Preventive Medicine, 1985–present. Elected to fellowship, 1986

American Academy of Occupational Medicine, 1985–88

American College of Occupational and Environmental Medicine, 1988–present.

Elected to fellowship, 1988

Michigan Occupational Medical Association Board of Directors, 1989–91

Society for Epidemiologic Research, 1988–present

Michigan Public Health Association, 2001–present

Society for Risk Analysis, 2002–present

International Epidemiological Association, 2002–present

American Chemical Society, 2008–present

Editorial Positions, Boards, and Peer-Review Service

State of Washington Department of Labor and Industries. Chemically Related Illness Scientific Advisory Board. 1994–95.

Charter member, Safety and Occupational Health (SOH) Study Section for the National Institutes of Health, 1992-1996. Chairman, 1995–96.

Chair, Clinical Sciences Special Emphasis Panel. Alcohol and Toxicology (ZRG4) Study Section for the National Institutes of Health, November 1996.

Chair, NCI Review Panel on Breast Cancer and the Environment on Long Island. National Institutes of Health, January 31, 1997.

Member, NCI Review Panel on Regional Variation in Breast Cancer Rates in the United States. National Institutes of Health, Rockville, MD, November 9, 1998.

Member, NIOSH Special Emphasis Panel on Disease, Disability, and Injury Prevention Control Grants, National Institute for Occupational Safety and Health, Florence KY. February 21–23, 1999.

Member, NIEHS Special Emphasis Panel on Superfund Basic Research Projects, National Institute of Environmental Health Sciences, Research Triangle Park, NC. October 25–27, 1999.

Chair, NIOSH Site Visit to University of Washington Educational Resource Center. Seattle, Washington, November 7–9, 2001.

Chair, NIOSH Special Emphasis Panel on Training Programs in Occupational Health and Safety. St. Petersburg, Florida. February 17–20, 2002.

Mickey Leland National Urban Air Toxics Research Center, Houston, Texas. Appointed to Scientific Advisory Board, 2002–2009.

Member, NIH Special Emphasis Panel/Scientific Review Group 2006/10 ZLM1 ZH-P (O1), July 14, 2006

Member NIEHS Special Emphasis Panel/Scientific Review Group 2007/10. National Institute of Environmental Health Sciences, Research Triangle Park, NC. July 11–14, 2007.

Member, American Cancer Society Peer Review Committee on Physician Training Award in Preventive Medicine. American Cancer Society, Atlanta, Georgia. 2008–2012

Institute of Medicine of the National Academies of Sciences. Participant – GAO Workshop on Cancers Added to the World Trade Center Health Program (WTCHP) List of Covered Conditions. Washington, D.C. October 21, 2013.

Scientific Journal Board of Editors:

Journal of Occupational Medicine, Editorial Board. 1987-1992

Medical Journal of Indonesia, Editorial Board. 2000–present

Journal of Environmental and Public Health. 2009-2011

Reviewer, Scientific Manuscripts:

American Journal of Epidemiology
 American Journal of Industrial Medicine
 Chemosphere
 Critical Reviews in Toxicology
 Environmental Health Perspectives
 Environmental Science and Technology
 Epidemiology
 Journal of Exposure Science and Environmental Epidemiology
 Journal of Occupational and Environmental Medicine
 Journal of the National Cancer Institute
 Risk Analysis

Teaching

Attending Physician, Occupational Medicine Outpatient Clinic, University of Michigan Medical Center, Ann Arbor, Michigan, 1989-2011

Director, Occupational and Environmental Epidemiology Program, University of Michigan School of Public Health 2001-2007

Ph.D. Thesis Committee Member

N. Seixas, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1990

A. Rocskay, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1991

N. Nelson, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1992

Carol Burns. The epidemiology of systemic sclerosis: a population based case control study. Ph.D. in Epidemiologic Science, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1994

Jane Krebs. Mortality at an automotive stamping and assembly facility. Ph.D. in Epidemiologic Science, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1995. Doctoral Committee Co-Chair.

Jacqueline Kurtz. An evaluation of peer and professional trainers in an occupational health and safety training program. Ph.D. in Environmental and Industrial Health, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1995

Jon Fryzek. A case-control study of DDT and related compounds and pancreas cancer. Ph.D. in Epidemiologic Science, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1996. Doctoral Committee Co-Chair.

Stephen Martin. 1,1 dichloro-2,2-bis(p-chlorophenyl)ethylene, testosterone levels and lipid profile in African American farmers and farm workers. University of Michigan, School of Public Health, Ann Arbor, Michigan, 2001.

Jeanette Jane Rainey. Epidemiological and environmental co-factors linked to endemic Burkitt's lymphoma in Kenya. Ph.D. in Epidemiologic Science, University of Michigan, School of Public Health, Ann Arbor, Michigan 2005

Gena Pauline Kucera. Hormone replacement therapy and nonsteroidal anti-inflammatory drugs on the risk of colorectal cancer in women. Ph.D. in Environmental and Industrial Health, University of Michigan, School of Public Health, Ann Arbor, Michigan, 2006. Doctoral Committee Chair.

Aaron Sussell. Incidence And Prevalence Of Occupational Contact Dermatitis In Automobile Manufacturing. PhD in Environmental Health Sciences, University of Michigan School of Public Health, 2007.

Andrea Steege. Access to health care among migrant farm workers. University of Michigan, School of Public Health, Ann Arbor, Michigan, 2009. Doctoral Committee Co-Chair.

Qixuan Chen. Bayesian Model Based Approach to Complex Survey Data Analysis. Department of Biostatistics, University of Michigan, School of Public Health, Ann Arbor, Michigan, 2009.

Committee, Organizational, and Volunteer Service

Director, Occupational Medicine, University of Michigan School of Public Health, Ann Arbor, Michigan, December 1988-94

Member, School of Public Health Executive Committee, University of Michigan, Ann Arbor, Michigan, 1989-1991.

Director, Center for Occupational Health, Safety, and Engineering, University of Michigan, Ann Arbor, Michigan, 1990-1995

Associate Director, Center for Occupational Health, Safety, and Engineering, University of Michigan, Ann Arbor, Michigan, 1995-2000

Director, Division of Occupational Health, University of Michigan School of Public Health.
1992 -1995

Member, Executive Committee, Department of Environmental and Industrial Health, University of Michigan School of Public Health, Ann Arbor, MI. January 1992-1995.

Chair, Curriculum Committee, Department of Environmental and Industrial Health, University of Michigan School of Public Health, 1996-97.

Chair, Advisory Committee on Academic Rank, University of Michigan School of Public Health, 1997-99. Member 1996-97, 1999-00.

Member, Executive Committee, University of Michigan School of Public Health. 2000-2003.

Member, Student Recruitment Committee, Department of Environmental Health Sciences, University of Michigan School of Public Health, 2001-03

Founding Director, Center for Risk Science and Communication, University of Michigan School of Public Health, 2003-present

Member, Search Committee for Dean of University of Michigan School of Public Health, 2004-05

Member, Executive Committee, University of Michigan School of Public Health, 2006-07

Member, Office of the Vice President for Research Conflict of Interest Committee, University of Michigan, Ann Arbor, Michigan, 2009-2012

Member, Dean's Advisory Council, University of Michigan School of Public Health, 2012-present

Visiting Professorships, Seminars, and Extramural Invited Presentations

1. "Colon Cancer and Job Activity." Invited Paper at Occupational Epidemiology Forum, sponsored by USC, UCLA, and UC Irvine Schools of Medicine. Irvine, CA, 1983.
2. Annual Meeting of the Western Occupational Medical Association, "Pulmonary disease in borax workers", San Francisco, California, 1982.
3. 4th Annual Rocky Mountain Conference on Occupational and Environmental Health, "Respiratory symptoms from borax and boric acid aerosols", Park City, Utah, 1982.
4. American Occupational Medical Association Annual Meeting, "Occupational cancer", Los Angeles, California, 1984.
5. "Respiratory Effects of Borax Dust." Invited Paper at Occupational Epidemiology Forum, sponsored by USC, UCLA, and UC Irvine Schools of Medicine, Irvine, CA, 1984.
6. Panel Chairman. "Health Issues for Women in the Workplace." Annual Scientific Meeting, American Occupational Medical Association, Los Angeles, CA, 1984.
7. "Occupational Cancer." Postgraduate Education Conference at the American Occupational Medical Association Basic Curriculum Course, Salt Lake City, UT, 1984.
8. "Epidemiology for the Occupational Physician." Postgraduate Education Conference at the Annual Scientific Meeting, American Occupational Medical Association, Los Angeles, CA, 1984.

9. "Contact Dermatitis from Aziridine Hardener in Printing Ink." Invited Paper at Occupational Epidemiology Forum, sponsored by USC, UCLA, and UC Irvine Schools of Medicine, Irvine, CA, 1985.
10. Western Occupational Medical Association Conference, "Epidemiology of occupational cancer", Stanford University, Palo Alto, California, 1985.
11. "Toxicology." Workshop on evaluation of workers compensation patients exposed to hazardous chemicals. Postgraduate Education Conference. Presented by the State of California Division of Industrial Accidents and USC School of Medicine, Los Angeles, CA, 1985.
12. Special Studies Unit, Division of Occupational Safety and Health, Department of Industrial Relations, State of California, Sacramento, California, 1985.
13. V International Symposium, Epidemiology in Occupational Health, "Cancer mortality in the aircraft manufacturing industry", Los Angeles, California, 1986.
14. Epidemiology and cancer registries in the Pacific Basin V, "Cancer risks in the aircraft manufacturing industry", Kauai, Hawaii, 1986.
15. "Cancer Mortality in the Aircraft Manufacturing Industry." Invited Paper at Occupational Epidemiology Forum, sponsored by USC, UCLA, and UC Irvine Schools of Medicine, Irvine, CA, 1986.
16. "Occupational exposure to electromagnetic fields and adult leukemia." Invited Paper at Occupational Epidemiology Forum, sponsored by USC, UCLA, and UC Irvine Schools of Medicine, Irvine, CA 1987.
17. "Studies of electromagnetic fields and cancer risk." Seminar at Joint Symposium sponsored by Fred Hutchinson Cancer Research Center, University of Washington School of Medicine and Department of Preventive Medicine, USC. Seattle, WA, 1987.
18. "Electromagnetic fields and cancer risk," and "Exposure assessment in occupational and residential studies of ELF and leukemia." Invited lecturer, International Agency for Research on Cancer, Lyon, France, May 1988.
19. California Cancer Registries Conference 1988: Innovations in Research, "Coding and use of cancer registry data to look for occupational cancers", Newport Beach, California, October 1988.
20. 32nd Annual Western Occupational Health Conference, "When is cancer work related?", Irvine, California, October 1988.
21. "Toxicology of chrome." Invited guest, Aerospace Hazardous Waste Minimization Symposium, Los Angeles, CA, May 1988.
22. "Medical/Ethical Pitfalls of Occupational Medicine From a Clinicians Standpoint." Invited speaker, Southern California Edison Company, Oxnard, CA, July 1988.
23. "Prospective Study of Respiratory Effects of Formaldehyde in Medical Students". Invited speaker, UC Irvine, Department of Community and Environmental Medicine. October 20, 1988.
24. Invited lecturer, California Cancer Registries Conference 1988: Innovations in Research. Lecture topic: "Coding and Use of Cancer Registry Data to Look for Occupational Cancers", Newport Beach, California, October 1988.
25. Lecturer, "Physical Activity and Colon Cancer Risk", seminar sponsored by the University of Michigan, Ann Arbor, Michigan, September 1989
26. Chairperson, 41st Annual Selby Discussional, School of Public Health, University of Michigan, Ann Arbor, Michigan, September 1989

27. Lecturer, "Lung Disease in Borax Miners: Was Borax the Culprit?". School of Public Health, University of Michigan, Ann Arbor, Michigan, October 1989
28. Session Reporter, "Human Health Impacts of Halogenated Biphenyls and Related Compounds". University of Michigan, Ann Arbor, Michigan, November 8-9, 1989
29. Keynote Speaker, Joint Annual Meeting of The Michigan Occupational Medical Association, The Detroit Michigan Association of Occupational Health Nurses, and The Michigan Industrial Hygiene Society, "Electromagnetic Fields and Leukemia". Dearborn, Michigan, November 1989.
30. Lecturer, "Physical Activity and Colon Cancer". Ford World Headquarters, Dearborn, Michigan, January 1990.
31. Lecturer, "Multiple Chemical Sensitivities", press briefing at Dow-Elanco. Midland, Michigan, March 1990.
32. Speaker, "Man made mineral fibers and lung cancer". Presented at Pulmonary Division Grand Rounds, University of Michigan Medical Center, Ann Arbor, Michigan, December 7, 1990.
33. Speaker, "Epidemiologic study of end users of man-made mineral fiber". Report to Annual Scientific Session of the Thermal Insulation Manufacturers Association. Del Mar, California, October 30, 1990.
34. Conference Chairman, 42nd Annual Selby Discussional held at the University of Michigan, Ann Arbor, Michigan, November 8-9, 1990.
35. Invited speaker, "DDT and pancreas cancer". National Institute for Occupational Safety and Health, Cincinnati, Ohio, January 29, 1991.
36. Invited speaker, "Case control study of pancreas cancer among chemical manufacturing workers". University of Cincinnati School of Medicine, Department of Environmental Health Seminar Series. January 30, 1991.
37. Invited speaker, Epidemiologic studies of morbidity of man-made mineral fiber workers". In: Man-made mineral fibers: status of health risk assessment. Course given by the Department of Environmental Health Sciences, Johns Hopkins University School of Hygiene and Public Health. Baltimore, Maryland, March 4, 1991.
38. Invited speaker, "Electromagnetic fields and cancer". Annual meeting of the Semiconductor Industry Safety Association. Phoenix, Arizona, April 15, 1991.
39. Invited presentation, "DDT and pancreas cancer in a case control study of chemical workers." Society for Epidemiological Research Annual Meeting. Buffalo, New York, June 1991.
40. Conference Chairman, 43rd Annual Selby Discussional held at the University of Michigan, Ann Arbor, Michigan, November 1991.
41. Invited Faculty, National Cancer Institute, Division of Cancer Prevention and Control. 1992. Cancer Prevention and Control Academic Course. "Surveillance and special populations: occupations exposed to asbestos". August 7, 1992.
42. Conference Chairman, 44th Annual Selby Discussional held at the University of Michigan, Ann Arbor, Michigan, November 1992.
43. Invited speaker, Occupational Health Symposium Co-Sponsored by Bay Medical Education and the University of Michigan Center for Occupational Health and Safety. Saginaw, Michigan, March 12, 1993. "Occupational Cancers".
44. Invited speaker, Department of Epidemiology, University of Michigan Department of Epidemiology, March 18, 1993. "Recent Studies on EMF and Cancer".

45. Invited speaker, First Annual Cancer Conference. Recent Advances in Colorectal Carcinoma. Sponsored by the American Cancer Society, Detroit, Michigan, April 14, 1993. Epidemiology of Colorectal Cancer.
46. Conference Chairman, 45th Annual Selby Discussional held at the University of Michigan, Ann Arbor, Michigan, September 1993.
47. Invited speaker. Michigan State Medical Society Annual Meeting. "Electromagnetic Fields and Health". Detroit, Michigan, November 11, 1993.
48. Invited presentation. "Occupational exposures and urogenital cancers among leather workers". National Cancer Institute Workshop on Occupational Exposures and Urogenital Cancers. May 23-24, 1994, Rockville, Maryland.
49. Conference Chairman, 46th Annual Selby Discussional held at the University of Michigan, Ann Arbor, Michigan, October 13-14, 1994.
50. University of Michigan Comprehensive Cancer Center Grand Rounds. "DDT and Related Compounds and Pancreas Cancer. October 21, 1994.
51. Western Ohio Occupational Medical Association Annual Scientific Meeting. "Integration of Residents into Occupational Medicine Training". Toledo, Ohio, March 11-12, 1995.
52. Invited Speaker. BASF Corporation Isocyanates Review. Respiratory Disease from TDI and MDI. Wyandotte, Michigan, April 6, 1995.
53. Invited Speaker. Department of Public Health, Wellington School of Medicine. "DDT and pancreas cancer". July 28, 1995, Wellington, New Zealand.
54. Invited Speaker. First Annual Jakarta International Epidemiology Course. "Occupational Disease Epidemiology". December 4-15, Jakarta, Indonesia.
55. Invited Speaker. Faculty of Public Health, University of Indonesia. "Current Issues in Occupational Health". December 19, 1995, Depok, West Java, Indonesia.
56. Invited Speaker. Department of Cardiology, Faculty of Medicine, University of Indonesia. "Preparing an International Manuscript" April 9, 1996. National Cardiac Center, Harapan Kita Hospital, Jakarta, Indonesia.
57. Invited Speaker. Editorial Board of the Medical Journal of Indonesia. "Publishing in the International Medical Literature" April 9, 1996. University of Indonesia School of Medicine, Jakarta, Indonesia.
58. Invited Speaker. "Guidelines for Publishing in the International Medical Literature". May 21, 1996. Department of Internal Medicine Grand Rounds, University of Indonesia School of Medicine, Jakarta, Indonesia.
59. Invited Speaker. Symposium of Occupational Safety and Health to Anticipate the Era of Free Trade in the Year 2020. "Occupational Safety and Health in Developed Industrial Countries". May 23, 1996, University of Indonesia School of Medicine, Jakarta, Indonesia.
60. Invited Faculty, National Cancer Institute, Division of Cancer Prevention and Control. 1996 Cancer Prevention and Control Academic Course. "Special Populations and the Environment. High Risk Populations: Asbestos". August 9, 1996.
61. Invited Speaker. "Epidemiology of Pancreatic Neoplasia". Symposium: Current Concepts in Pancreas Cancer. Barbara Ann Karmanos Cancer Institute. Detroit, MI. September 12, 1997
62. Invited Speaker. "DDT and Related Materials and Pancreatic Cancer". NIEHS Center for Molecular and Cellular Toxicology, Wayne State University Institute of Chemical Toxicology. October 16, 1997.

63. Invited speaker. "Occupational Asthma". Symposium: Global Management of Airway Disease. University of Michigan Medical School, Division of Pulmonary and Critical Care Medicine. May 9, 1998 Livonia, Michigan.
64. Invited Speaker. "Occupational and Environmental Cancer". Annual Scientific Meeting of the Michigan Occupational and Environmental Medicine Association. September 11, 1998. Traverse City, Michigan
65. Invited Speaker. Epidemiology of Natural Rubber Latex Allergies in Health Care Workers. International Conference on Natural Rubber Latex Sensitivity. San Francisco, CA. Feb 9-10, 2001
66. Invited Speaker. Measurement of physical activity in the occupational setting. American Society for Preventive Oncology 25th Annual Meeting. New York City, NY. March 12, 2001.
67. Invited Speaker. XVI World Congress of Epidemiology. Montreal, Quebec. Risk of Solvent Exposure among Women with Scleroderma. August 20, 2002.
68. Invited Speaker. "Research studies of pesticide exposed populations." National Institute of Environmental Health Sciences, Division of Extramural Research and Training (DERT) Science Retreat. Wilmington, NC. November 21-22, 2002.
69. Invited presentation. Williams JM, Garabrant DH. Assessment of sight and hearing protection use in high school vocational, technical, and industrial education programs. Best Practices in Occupational Safety and Health, Education, Training and Communication. 6th International Conference, Scientific Committee on Education and Training in Occupational Health, ICOH. Baltimore, MD. October 28-30, 2002.
70. Invited presentation. Garabrant DH. Environmental and familial risks to pancreas cancer. University of Texas M.D. Anderson Cancer Center, Division of Cancer Prevention and Program in Cancer Prevention & Control. Houston, Texas. April 25, 2003.
71. Invited discussant. Garabrant DH. Manufacturing Science in Regulated Environments. Presented at the International Symposium on Development and Manufacturing Needs in Health Care Industries in the 21st Century. University of Michigan College of Engineering. Ann Arbor, Michigan September 19, 2003
72. Invited Speaker. Garabrant DH. 2003 Carey Pratt McCord Lecture. "Latex allergy in health care workers". Presented at the annual meeting of the Michigan Occupational and Environmental Medicine Association. Royal Oak, Michigan. November 6, 2003.
73. Invited Speaker. Garabrant DH. "The Michigan Dioxin Exposure Study". MidMichigan Medical Center-Midland Family Practice Department and Continuing Medical Education Department. Ann Arbor, Michigan. May 20, 2004.
74. Invited Speaker. Garabrant DH. "Biomarkers and Risk Assessment". Presented at the Association of Schools of Public Health Conference on Environmental Health Risk: Assessment, Management, and Communications. Minneapolis, Minnesota. July 11-13, 2004.
75. Keynote Speaker. Garabrant DH. "The University of Michigan Dioxin Exposure Study". Michigan Epidemiology Conference 2005. Ann Arbor, Michigan. March 11, 2005.
76. Invited Speaker. Garabrant DH. "Meta-Analysis as a Tool for Understanding Asbestos-Related Disease". Presented at the AIHce 2005 Annual Conference of the American Industrial Hygiene Association and American Conference of Governmental Industrial Hygienists. Anaheim, CA May 25, 2005

77. Invited Speaker. Garabrant DH. Mesothelioma risks among auto mechanics. Annual Scientific Meeting of the Michigan Occupational and Environmental Medicine Association. Lansing, MI. September 22, 2005.
78. Invited Speaker. Garabrant DH. "The University of Michigan Dioxin Exposure Study". Michigan's Premier Public Health Conference. Partnerships: Working Together to Improve the health of Michigan's Citizens. Michigan Association for Local Public Health. Grand Rapids, MI October 12, 2005
79. Moderator. Garabrant DH. Session IV Exposure Assessment. First Annual Air Toxics Research Workshop. Mickey Leland National Air Toxics Research Center. Houston, Texas. October 17, 2005.
80. Invited Speaker. Garabrant DH. Biomonitoring in Epidemiology Studies. Michigan Society of Toxicology Fall 2005 Meeting. Lansing, MI. November 4, 2005.
81. Invited speaker. DH Garabrant. Cohort mortality study of transmission and chassis workers. American Osteopathic College of Occupational and Preventive Medicine Mid-Year Conference. Pittsburgh, Pennsylvania. March 18, 2006.
82. Invited Speaker, Grand Rounds. Garabrant DH. Environmental and genetic factors in pancreas cancer. Department of Medicine, University of California, Irvine Medical Center, March 28, 2006.
83. Invited Presentation. Franzblau A, Garabrant D. The University of Michigan Dioxin Exposure Study: Project Overview. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
84. Invited Presentation. Olson K, Garabrant D. Prevalence of Exposure Routes in The University of Michigan Dioxin Exposure Study: Food Consumption, Recreational and Household Activities, Occupations and Demographics. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
85. Invited Presentation. Adriaens P, Garabrant D. Measurements of Soil Concentrations of PCDDs, PCDFs, and PCBs From a Community in Michigan, USA. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
86. Invited Presentation. Zwica L, Garabrant D. Measurements of Household Dust Concentrations of PCDDs, PCDFs, and PCBs From a Community in Michigan, USA. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
87. Invited Presentation. Hedgeman E, Garabrant D. Measurements of Serum Concentrations of PCDDs, PCDFs, and PCBs From a Community in Michigan, USA. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
88. Invited Presentation. Garabrant D. Environmental Factors That Explain Variation in Serum Dioxin Concentrations in a Community in Michigan, USA. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
89. Invited Presentation. Chang S-C, Garabrant D. Analysis of Patterns in PCDD, PCDF, and PCB Soil Concentrations From a Community in Michigan, USA. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
90. Invited Presentation. Lepkowski J, Garabrant D. Survey methodology in an environmental exposure study: methods to assure sound inference. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
91. Invited Presentation. Garabrant D. Factors that predict serum dioxin concentrations in Michigan, USA. Dioxin 2007. Tokyo, Japan. September 3, 2007.

92. Invited Presentation. Chen Q, Garabrant D. Serum 2,3,7,8-TCDD concentration in a Michigan, USA population with no unusual sources of exposure. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
93. Invited Presentation. Knutson K, Garabrant D. Linear regression modeling to predict household dust TEQ and TCDD concentration. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
94. Invited Presentation. Hong B, Garabrant D. Impact of the changes in WHO TEF values from 1998 to 2005 on the total TEQ values in serum, household dust and soil. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
95. Invited Presentation. Franzblau A, Garabrant DH. Human exposure to dioxins from clay: a case report. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
96. Invited Presentation. Jolliet O, Garabrant D. Effect of age and historical intake on blood dioxin concentrations: pharmacokinetic modeling to support statistical analyses. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
97. Invited Presentation. Towey T, Garabrant, D. Multivariate statistical analysis of dioxin profiles to explain source contributions to serum dioxins. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
98. Invited Presentation. Trinh H, Garabrant D. spatial distribution of dioxins from an incinerator; a validation study. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
99. Invited Presentation. Garabrant DH. Biomonitoring Results from the University of Michigan Dioxin Exposure Study. The NAS and WHO on Dioxin and Dioxin-like Compounds: International Policy Implications and Potential Impact, Michigan State University, September 19, 2007.
100. Invited Presentation. Garabrant, DH. Factors that predict serum dioxin concentrations in Michigan, USA. 17th Annual Conference of the International Society for Exposure Assessment, Durham, NC. October 16, 2007.
101. Garabrant D. Effective messages in concerned communities: the dioxin exposure study. 2007 Bernstein Symposium. Nanotechnology and Health: Evidence and Impact. University of Michigan Risk Science Center. October 26, 2007.
102. Invited Presentation. Garabrant, DH. Factors that predict serum dioxin concentrations in Michigan, USA. Society for Risk Analysis 2007 Annual Meeting. San Antonio, TX, December 9-12, 2007..
103. Invited Presentation. Garabrant D. The University of Michigan Dioxin Exposure Study project overview. Society for Risk Analysis 2007 Annual Meeting. San Antonio, TX, December 9-12, 2007.
104. Invited Presentation. Garabrant D. Chlorpyrifos exposure, inhibition of butyrylcholinesterase, and paraoxonase (PON1) activity in pesticide manufacturing workers. EPICOH-NEUREOH 2008 Conference, San Jose, Costa Rica, June 11, 2008.
105. Invited Presentation. Jolliet O, Wenger Y, Adriaens P, Chang C-W, Chen Q, Franzblau A, Gillespie BW, Hedgeman E, Hong B, Jiang X, Knutson K, Lepkowski J, Milbrath MO, Reichert H, Towey T, Garabrant, D. Explaining age dependency using pharmacokinetic modeling in the analysis of blood TCDD concentrations. Dioxin 2008 Conference, Birmingham, England, August, 2008.
106. Invited Presentation. Garabrant DH. Project overview and results of linear regression models of serum dioxin levels. Dioxin 2008 Conference, Birmingham, England, August, 2008.

107. Invited presentation. Garabrant DH. Cancer Mortality among U.S. Automotive Transmission Manufacturing Workers Exposed to Metal Working Fluids,” 2008 MRF SYMPOSIUM. October 5-8, Dearborn, Michigan.
108. Invited Presentation. Jiang X, Chen Q, Garabrant D, Hong B, Gillespie B, Lepkowski J, Franzblau A, Adriaens P, Demond A. Logistic Regression Models of High Serum Dioxin Level. Dioxin 2009 Conference, Beijing, China, August 27, 2009.
109. Invited Presentation. Hong B, Garabrant D, Jiang X, Chen Q, Franzblau A, Gillespie B, Lepkowski J, Adriaens P, Demond A. Factors that Predict Serum Concentration of 2,3,7,8-TCDD in People from Michigan, USA. Dioxin 2009 Conference, Beijing, China, August 27, 2009.
110. Invited Presentation. Gillespie B, Reichert H, Chen Q, Franzblau A, Lepkowski J, Adriaens P, Demond A, Luksemburg W, Garabrant D. Estimating Population Percentiles Using the Turnbull Estimator When Some Data Are Below the Limit of Detection. Dioxin 2009 Conference, Beijing, China, August 27, 2009.
111. Invited Presentation. Garabrant D, Hong B, Jolliet O, Chen Q, Jiang X, Franzblau A, Lepkowski J, Adriaens P, Demond A, Hedgeman E, Knutson K, Towey T, Gillespie B. Public Health Impact of Dioxin Exposure Pathways in the UMDES, Based on Linear Regression Models. Dioxin 2009 Conference, Beijing, China, August 27, 2009..
112. Invited Presentation. Franzblau A, Hedgeman E, Jiang X, Chen Q, Hong B, Knutson K, Towey T, Adriaens P, Demond A, Gillespie B, Jolliet O, Lepkowski J, Garabrant D. The University of Michigan Dioxin Exposure Study: An Investigation of Serum Outliers for TEQ, 2,3,7,8-TCDD, 2,3,4,7,8-PeCDF, and PCB-126. Dioxin 2009 Conference, Beijing, China, August 27, 2009.
113. Invited Presentation. Franzblau A, Garabrant D, Gillespie B, Jiang X, Adriaens P, Demond A, Jolliet O, Lepkowski J. Implications of the EPA’s new preliminary remediation goals for residential soil based on the University of Michigan Dioxin Exposure Study. Dioxin 2010 Conference, San Antonio, Texas. September 12-16, 2010.
114. Invited Presentation. Garabrant D, Jiang X, Franzblau A, Adriaens P, Demond A, Gillespie B, Jolliet O, Lepkowski J, Hao W. The University of Michigan Dioxin Exposure Study: Relationship between residential soil, household dust, and serum dioxin levels. Dioxin 2010 Conference, San Antonio, Texas. September 12-16, 2010.
115. Invited Presentation. Hao W, Jolliet O, Jiang X, Garabrant D, Franzblau A, Adriaens P, Demond A, Gillespie B, Lepkowski J. The University of Michigan Dioxin Exposure Study: Dioxin intake due to fish and game consumption in a dioxin-contaminated area. Dioxin 2010 Conference, San Antonio, Texas. September 12-16, 2010.
116. Invited Presentation. Hao W, Jolliet O, Jiang X, Chang C-W, Towey T, Wenger Y, Garabrant D, Franzblau A, Adriaens P, Demond A, Gillespie B, Lepkowski J. The University of Michigan Dioxin Exposure Study: A pharmacokinetic modeling approach to investigate the predictors of serum TCDD concentration. Dioxin 2010 Conference, San Antonio, Texas. September 12-16, 2010.
117. Invited Presentation. Evidence of dioxin exposure in Michigan residents exposed to contaminated soils. The 37th Annual Summer Meeting of the Toxicology Forum. The Aspen Institute, Aspen, Colorado. July 12, 2011.
118. Invited Presentation. Garabrant DH. Improving measures in epidemiology: prospective cohort study of chlorpyrifos manufacturing workers. Symposium ILSI Argentina – ILSI HESI – SETAC Capitulo Argentino. Advances in Epidemiology: the impact of pesticides. September 28, 2011. Argentine Scientific Society, Buenos Aires, Argentina.

119. Invited Presentation. Garabrant DH. The University of Michigan Dioxin Exposure Study: Predictors of human serum dioxin concentrations in Midland and Saginaw Michigan. Society of Toxicology of Canada 43rd Annual Symposium. Montreal, Canada. December 4-6, 2011.
120. Invited Presentation. Franzblau A, Broadwater K, Luksemburg W, Maier M, Jiang X, Garabrant DH, Demond A. Serum Concentrations of Polychlorinated Dibenzo-p-dioxins Among Users of Ball Clay. Joint ISEE, ISES and ISIAQ Environmental Health Conference. 19-23 August 2013, Basel, Switzerland.
121. Invited presentation: Garabrant DH. Biomonitoring of chlorpyrifos excretion, butyryl cholinesterase activity, and acetyl cholinesterase activity among chlorpyrifos manufacturing workers. In: Use of spot biomonitoring samples for environmental epidemiology. International Society of Exposure Sciences 25th Annual Meeting. Henderson, NV October 22, 2015.
122. Invited presentation. Garabrant DH and Pastula SS. A comparison of asbestos fiber potency and elongate mineral particle (EMP) potency in humans. Monticello Conference. October 18, 2017. Charlottesville, Virginia.

Bibliography

Peer Reviewed Journals and Publications:

1. Peters JM, Wright WE, Garabrant DH. Occupational epidemiology: detection of cancer in the workplace. *West J Med* 1982; 137:555-559.
2. Bernstein RS, Sorenson WG, Garabrant DH, Reaux I, Keough B, Hunninghake G, Treitman M. Exposures to respirable airborne penicillium from a contaminated ventilation system: clinical, environmental, and epidemiological aspects. *Am Indus Hygiene Assoc J* 1983; 44:161-169.
3. Garabrant DH, Peters JM, Mack TM, Bernstein L. Job activity and colon cancer risk. *Am J Epidemiol* 1984; 119:1005-1014.
4. Garabrant DH, Peters JM, Bernstein L, Smith T. Respiratory and eye irritation from boron oxide and boric acid dusts. *J Occup Med* 1984; 26:584-586.
5. Garabrant DH, Wegman DH. Cancer mortality among shoe and leather workers in Massachusetts. *Am J Indust Med* 1984; 5:303-314.
6. Garabrant DH, Peters JM, Bernstein L, Smith T, Wright WE. Respiratory effects of borax dust. *Brit J Indust Med* 1985; 42:831-837.
7. Garabrant DH. Dermatitis to an aziridine hardening agent used in water based printing ink. *Contact Dermatitis* 1985; 12:209-212.
8. Peters JM, Garabrant DH, Wright WE, Bernstein L, Mack TM. Uses of a cancer registry to assess occupational cancer risks. *National Cancer Institute Monograph* 1985; 69:157-161.
9. Osorio AM, Bernstein L, Garabrant DH, Peters JM. Investigation of lung cancer among female cosmetologists. *J Occup Med* 1986; 28:291-295.
10. Froines JR, Garabrant DH. Quantitative evaluation of manicurists exposure to methyl, ethyl, and isobutyl methacrylate during production of synthetic fingernails. *App Indust Hyg* 1986; 1:70-74.
11. Garabrant DH, Fine LJ, Oliver C, Bernstein L, Peters JM. Abnormalities of pulmonary function and pleural disease among titanium metal production workers. *Scand J Work Health Environ* 1987; 13:47-51.

12. Kawamoto MM, Garabrant DH, Balmes JR, Fynboh R, Dimick DV, Simonowitz JA, Held J, Bernstein L. Respiratory effects of cotton dust exposure in the cotton ginning industry. *Am J Ind Med* 1987; 11:505-515.
13. Garabrant DH, Held J. Mortality study of aircraft manufacturing employees. *Scand J Work Health Environ* 1987; 13:170-171.
14. Peters JM, Garabrant DH, Preston-Martin S, Yu MC. Is trichloroethylene a human carcinogen? *Scand J Work Health Environ* 1987; 13:180.
15. Goldberg R, Garabrant DH, Peters JM, Simonowitz J. Excessive lead absorption resulting from exposure to lead naphthenate. *J Occup Med* 1987; 29:750-751.
16. Barone JA, Peters JM, Garabrant DH, Bernstein L, Krebsbach R. Smoking as a risk factor for noise-induced hearing loss. *J Occup Med* 1987; 29:741-745.
17. Preston-Martin S, Garabrant DH. Occupational risks for meningiomas of the CNS in Los Angeles County. *J Occup Med* 1988; 30:14-18.
18. Wright W, Bernstein L, Peters JM, Garabrant DH, Mack TM. Adenocarcinoma of the stomach and exposure to occupational dust. *Am J Epidemiol* 1988; 128:64-73.
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0012-1

Thank you for your comment and participation in the public review of the Project and the environmental document. The comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0012-2

The comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. The comment is noted and will be considered by County decisionmakers. The comment states that horizontal drilling techniques are not technologically or economically feasible in the majority of the Project Area because oil and gas reservoirs are contained within highly complex geologic settings, largely dominated by faults and traps, and that producible reservoirs are situated in isolated small pockets that are discontinuous laterally.

The comment is consistent with the discussion in the SREIR regarding the infeasibility of horizontal drilling techniques due to the Project Area's geological setting. See SREIR (August 2020), Vol. 1, at 4.2-35. The discussion of geological conditions in the Project Area and the infeasibility of horizontal drilling has been updated in the SREIR (October 2020), Vol. 1, at 4.2-34–36.

0012-3

The comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. The comment is noted and will be considered by County decisionmakers. The comment states that drilling equipment available in California is not capable of making near-right angle turns from vertical initiations, and that even where geological features may be suitable for horizontal drilling, wells must be deep enough to accommodate a gradual horizontal turn.

A discussion regarding drilling equipment and the infeasibility of well clustering has been added to the SREIR (October 2020), Vol. 1, at 4.2-36–37.

0012-4

The comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. The comment is noted and will be considered by County decisionmakers. The comment notes that the majority of future wells in the County are expected to be in locations where Enhanced Oil Recovery (EOR) methods are used in shallow and closely spaced wells, and that well spacing under current EOR practices is dictated by the space needed between the injection well and surrounding producing wells. The comment further states that well clustering is not technologically or geometrically feasible in areas where EOR methods are used.

A discussion of EOR methods and their incompatibility with well clustering has been added to the SREIR (October 2020), Vol. 1, at 4.2-36.

0012-5

The comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. The comment is noted and will be considered by County decisionmakers. The comment states that, in some portions of the Project Area (e.g., North Shafter field near Wasco), horizontal drilling from larger clustered well pads can be utilized with an agreement between the surface owner and mineral owner. The comment notes that horizontal drilling can be used in areas with relatively homogeneous horizontal layers that span large areas.

The SREIR (October 2020) has been updated with additional information regarding where horizontal drilling is utilized in the Project Area, and to state that even where geological features are suitable to horizontal drilling, surface owners may prefer that wells be distributed in multiple locations on the property rather than clustered in a single location. See SREIR (October 2020), Vol. 1, at 4.2-34–36.

0012-6

The comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. The comment is noted and will be considered by County decisionmakers. The comment states that multi-well pads

are widely used in other oil and gas-rich areas of the United States, including Texas, New Mexico, and Colorado, as the geological formations in these regions are more homogeneous and occur over flat and long intervals.

A discussion of multiple well pads being utilized in other areas of the United States has been added to the SREIR (October 2020), Vol. 1, at 4.2-36.

0012-7

The comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. The comment is noted and will be considered by County decisionmakers. The comment notes that horizontal drilling can result in higher emissions due to longer drilling paths, longer drilling durations, and higher horsepower engines that are not associated with vertical wells. The comment states that multi-well pads can require fewer access roads, which would reduce emissions of particulate matter up to 10 microns in diameter (PM₁₀) as compared to spaced out vertical wells, but such emission reductions are negligible compared to the drilling-related emissions associated with horizontal drilling.

The comment is consistent with information in the 2015 FEIR and the SREIR (August 2020) regarding how horizontal drilling activities would generate greater air quality, greenhouse gas, and toxic air contaminant emissions due to longer drilling periods. See 2015 FEIR, Vol. 1, at 6-22–23; SREIR (October 2020), Vol. 1, at 4.2-37. The SREIR (October 2020) has been updated with additional information regarding increased emissions associated with higher horsepower engines required for horizontal drilling techniques. See SREIR (October 2020), Vol. 1, at 4.2-37–38.

0012-8

The comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. The comment is noted and will be considered by County decisionmakers. The comment notes that clustering multiple wells and utilizing horizontal drilling techniques can lead to more substantial impacts to land and habitat as compared to vertical drilling, and that horizontal drilling from a multi-well pad located in a high fault area can expose operations to greater safety risks.

The comment is consistent with the discussion in the SREIR (August 2020) regarding increased risks of injury, traffic and air emissions, and habitat disruption associated with clustered well pads, and its conclusion that well clustering mitigation would not reduce (but would likely exacerbate) Project impacts. See SREIR (October 2020), Vol. 1, at 4.2-37–38. The SREIR (October 2020) has been updated with additional information regarding increased safety risks and land disturbance associated with well clustering. See SREIR (October 2020), Vol. 1, at 4.2-37–38.

0012-9

The comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. The comment is noted and will be considered by County decisionmakers. The comment states that a 2,500-foot setback requirement would be technologically infeasible where oil and gas reservoirs are too shallow to make horizontal turns or not wide enough to be accessed vertically from the setback point, and would effectively prohibit drilling in certain locations.

This information has been added to the SREIR (October 2020) and its discussion of Alternative 7, 2,500-Foot Setback Alternative. See SREIR (October 2020), Vol. 1, at 6-34–45.

0012-10

The comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. The comment is noted and will be considered by County decisionmakers. The comment notes that oil and gas fields in the County may have multiple mineral owners per parcel.

This information is consistent with the discussion in the SREIR (August 2020) regarding surface and mineral rights and has been added to the SREIR (October 2020), Vol. 1, at 4.2-38–39.

0012-11

The comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. The comment is noted and will be considered by County decisionmakers. The comment notes that horizontal drilling can be distinguished from “directional drilling,” which occurs at slight angles as compared to vertical drilling.

The data provided by the commenter indicate that horizontally drilled wells had a substantially larger average length of vertical section (measured in feet) than vertical and directional wells. The SREIR (October 2020) has been updated with additional information regarding how directional drilling is distinguishable from horizontal drilling, as well as the data regarding the number, and length, of wells that were drilled horizontally, directionally, and vertically by the commenter in 2020. Draft SREIR (October 2020), Vol. 1, at 4.2-36–37.

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- 13 Natural Resources Defense Council; Center on Race, Poverty & the Environment; Earthjustice; Sierra Club; and Center for Biological Diversity

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August 12, 2020

Via electronic mail

Lorelei Oviatt, AICP, Director
 Kern County Planning and Natural Resource Dept.
 2700 “M” Street, Suite 100
 Bakersfield, CA 93301-2323
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planning@kerncounty.com

*Re: Request for Public Comment Extension for Draft Supplemental Recirculated
 Environmental Impact Report to the Revisions to Title 19-Kern County Zoning Ordinance
 (2020-A) Focused on Oil and Gas Local Permitting (SCH # 2013081079)*

Dear Ms. Oviatt:

We are writing to request an extension of the comment period for the Draft Supplemental Recirculated Environmental Impact Report (SREIR) for Revisions to the Kern County Zoning Ordinance – 2020(A), Focused on Oil and Gas Local Permitting (the “Ordinance”). On behalf of the undersigned organizations, we ask that the Kern County Planning and Natural Resource Department provide forty-five (45) days more than the minimum 45-day public review period to comment on the SREIR.

We believe a 45-day extension is necessary and reasonable for several reasons. First, the draft SREIR and its accompanying appendices are lengthy and highly technical, and the Ordinance would effect a major change in County law with wide-ranging environmental impacts. Given that the County’s previous EIR and ordinance were set aside by the Fifth District Court of Appeal for a failure to comply with the California Environmental Quality Act (CEQA), County officials and community members would be best served by allowing sufficient time for a full vetting of the SREIR.

Second, a 45-day extension is warranted in light of the significant challenges posed by the COVID-19 global pandemic. Due to the global pandemic, our offices—like those of many public advocacy groups—have been forced to close, and our staff has had to reduce its capacity due to childcare, illness, and other circumstances beyond our control. Many community members likewise are constrained by childcare, illness, and other circumstances that restrict their time and ability to review and provide comments on the SREIR, and would benefit from an extension.

Third, the Planning and Natural Resource Department should grant a 45-day extension and—in the interim—take steps to ensure that Kern County’s many Spanish-speaking residents receive at least the minimum 45 days to learn about the SREIR in Spanish and provide comments on it. To this end, the County can and should:

- Reissue and republish the notice of availability of the SREIR in Spanish;

0013-1

- Translate into Spanish and post, at a minimum, the Executive Summary of the SREIR; the translated Executive Summary and any other translated sections should be posted at least 45 days prior to the close of the extended public comment period;
- Postpone the public workshop currently scheduled for August 17, 2020 until at least two weeks after the notice of availability and materials are made available in Spanish;
- Ensure that the workshop is easily accessible to Spanish-speaking and low-income community members by:
 - (a) inviting residents to ask questions or offer comments in Spanish;
 - (b) providing two way, simultaneous Spanish and English interpretation services for any oral presentation and all verbal comments;
 - (c) providing a Spanish-language version of any slides or other written materials; and
 - (d) allowing residents to join the workshop by phone as well as computer; and

As our State's bedrock environmental protection and community right-to-know law, CEQA was intended to allow the public to gain full information about proposed projects and to participate in decision-making in a meaningful way. The rush to move forward with a new SREIR and proceed with minimal time for public input undermines these objectives, particularly for Kern County's substantial Spanish-speaking population. Extending the comment deadline for 45 days would allow all members of the public and organizations like ours to have sufficient time to obtain and review the SREIR, consult with experts, and provide informed comments to the County on this important matter.

We welcome the opportunity to work with you moving forward.

Best regards,



Ann Alexander
Natural Resources Defense Council



Chelsea Tu/Caroline Farrell
Center on Race, Poverty & the Environment



Colin O'Brien/Byron Chan
Earthjustice



Elly Benson
Sierra Club



Hollin Kretzmann
Center for Biological Diversity

0013-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. A response by letter dated August 13, 2020, from Lorelei H. Oviatt, AICP, Kern County Director of Planning and Natural Resources, was provided declining to extend the comment period as comments will be accepted throughout the process until the Board of Supervisors has considered the Project and final decision has been issued.

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**PLANNING AND NATURAL
 RESOURCES DEPARTMENT**

Planning
 Community Development
 Administrative Operations

August 13, 2020

Transmitted by Electronic Mail
 Colin O'Brien/Byron Chan – EarthJustice
 Elly Benson – Sierra Club
 Hollin Kretzmann – Center for Biological Diversity
 Chelsea Tu/Caroline Farrell – Center on Race, Poverty and Environment

Re: Request to Extend the Public Review for the Draft Supplemental Recirculated Environmental Impact Report (SREIR) for the Revisions to Title 19-Kern County Zoning Ordinance (2020-A) Focused on Oil and Gas Permitting (SCH#2013081079)

Dear Organizational Representatives,

The Planning and Natural Resources Department is in receipt of your August 12, 2020 letter requesting an extension of time for the review of the Supplemental Recirculated Environmental Impact Report (SREIR) for Local Oil and Gas Permitting. Staff has reviewed the notification and release of the SREIR and determined that an extension of time is not warranted and all notification complies with State law.

The workshop scheduled for Monday August 17, 2020 at 1:30 is not required by law. It is being provided to explain the public process for reconsideration of the Zoning Ordinance and present the structure of the SREIR. It will have a Spanish translation line for call-in for simultaneous translation of the presentation as well as the ability to use Close Captioning on the platform. While written chat comments in any language can be submitted, there will be no verbal comments that are taken in either English or any other language. Comments on the SREIR can be submitted in writing in any language through the methods noted in the Notice of Availability.

The instructions for accessing the workshop and contacts for resolving any difficulties can be found here.

https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/Final_Oil_Gas_SREIR_Workshop_Meeting_Instructions.pdf

The Planning Commission and Board of Supervisors Hearing for this matter will have full access and capability for Spanish translation and taking verbal comments in both English and Spanish. It is the policy of this department to accept all comments at any time up to the final consideration and decision of the Board of Supervisors and any submitted will be considered and included in the record. This completes our response to your request. Thank you.

Lorelei Oviatt

Lorelei H. Oviatt, AICP
 Director
 Planning and Natural Resources Department

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7.3 Response to Comments Circulation (October 2020)

7.3.1 Errata

The following revisions have been made to the SREIR (October 2020) document. Revisions are shown in bold italics, with deletions shown in strikethrough and additions shown in underlining. These inadvertent omissions are a minor clarification, and the Lead Agency notes that all of the updates to mitigation measures make the mitigation measures more, not less, protective. No new significant environmental impact would result from the changes. Therefore, no significant revisions have been made that would require recirculation of the Draft SREIR pursuant to CEQA Guideline 15088.5 (Recirculation of an EIR Prior to Certification).

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Chapter 1, Page 1-11

County Objectives

- Update the County's Zoning Ordinance to create a local permit for oil and gas activities so that County development standards and protective mitigation measures **can be implemented** for the purpose of reducing or eliminating potential significant environmental impacts, to the extent feasible, of future oil and gas activities and thereby ensure that the current County ordinances implement the Board of Supervisors' policies to protect the health, safety and general welfare of communities, residents and visitors.
- Ensure the protection of environmental resources by emphasizing the **conservation importance** of productive agricultural lands, the encouragement of planned urban growth, the promotion of clean air strategies to address existing air quality issues, and the promotion of long-term water conservation strategies which will ensure the quality and adequacy of surface and groundwater supplies for future growth of all of Kern County's industries and communities.

Chapter 1, 1.7.1, Alternatives Eliminated from Further Consideration, Page 1-29

- **Renewable Energy Alternatives**

- **Example: The ordinance would require all new oil and gas well drilling operations to be powered by renewable electric generation sources, such as wind and solar technologies.**
- **Feasibility: This is not a feasible alternative based on the scope of land needed, and impacts from environmental impacts from the sources.**

- **Zero Net Gain Alternative**

- **Example: The ordinance would require that no new oil and gas well drilling permits would be issued except to the extent that an equal number of existing oil or gas wells have first stopped production and been abandoned in accordance with state law. There would be no zero net gain in the total number of oil and gas wells operating.**
- **Feasibility: This alternative was eliminated as legally infeasible because it would create exposure to litigation for a regulatory and physical takings.**

Chapter 3, Project Description, page 3-15–17

Table 3-3: Kern County Zoning Ordinance – Existing County Approval Procedure and Setback Requirements for New Oil and Gas Production

Zone Districts		Type of County Approval Required				Set Back Required (in feet)			
		Unrestricted ^(a)	Ministerial Permit ^(b)	CUP	Prohibited	Dwelling	Public Highway or Building	Buildings Used as Place of Assembly, Institution or School	Any Building Used for Commercial Purposes
	1. Agricultural Districts								
A	Exclusive Agriculture District	●				100	N/A	N/A	N/A
A-1	Limited Agriculture District	●				100	N/A	N/A	N/A
	2. Residential Districts								
E	Estate District			●		150	100	300	50 ^(c)
R-1	Low-Density Residential District			●		150	100	300	50 ^(c)
R-2	Medium-Density Residential District			●		150	100	300	50 ^(c)
R-3	High-Density Residential District			●		150	100	300	50 ^(c)
MP	Mobile Home Park District				●				
	3. Commercial Districts								
CO	Commercial Office District ^(g)			●		150	100	300	50 ^(c)
C-1	Neighborhood Commercial District ^(g)			●		150	100	300	50 ^(c)

Chapter 3, Project Description, page 3-15–17

Table 3-3: Kern County Zoning Ordinance – Existing County Approval Procedure and Setback Requirements for New Oil and Gas Production

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		Unrestricted ^(a)	Ministerial Permit ^(b)	CUP	Prohibited	Dwelling	Public Highway or Building	Buildings Used as Place of Assembly, Institution or School	Any Building Used for Commercial Purposes
C-2	General Commercial District ^(g)			●		150	100	300	50 ^(c)
CH	Highway Commercial District ^(g)			●		150	100	300	50 ^(c)
	4. Industrial Districts								
M-1	Light Industrial District		●			150	100	300	50 ^(c)
M-2	Medium Industrial District	●				100	N/A	N/A	N/A
M-3	Heavy Industrial District	●				100	N/A	N/A	N/A
	5. Special Purpose Districts								
RF	Recreation-Forestry District		●			150	100	300	50 ^(c)
OS	Open Space District				●	N/A	N/A	N/A	N/A
NR	Natural Resource District	●				100	N/A	N/A	N/A
DI	Drilling Island District (used within subdivided residential areas)					300 <u>150</u>	100	300	50 ^(c)
FPP	Floodplain Primary District	● ^(d)				(6)	(6)	(6)	(6)
SP	Special Planning District	● ^(e)				N/A	N/A	N/A	N/A

Chapter 3, Project Description, page 3-15–17

Table 3-3: Kern County Zoning Ordinance – Existing County Approval Procedure and Setback Requirements for New Oil and Gas Production

Zone Districts		Type of County Approval Required				Set Back Required (in feet)			
		Unrestricted ^(a)	Ministerial Permit ^(b)	CUP	Prohibited	Dwelling	Public Highway or Building	Buildings Used as Place of Assembly, Institution or School	Any Building Used for Commercial Purposes
PL	Platted Lands District ^(g)			●		150	100	300	50 ^(c)
PE	Petroleum Extraction ^{(g)(h)}		●			300	100	300	50 ^(c)

Notes:

- (a) “Unrestricted Drilling” requires no County review or County permit, subject to compliance with specified conditions and standards that augment CalGEM, SJVAPCD, and other agency regulations.
- (b) Ministerial Permit requires submittal of an Application for Plot Plan Review to Kern County Planning Director.
- (c) A well is not permitted within 50 feet of any building used for commercial purposes without written consent of structure owner prior to the commencement of such drilling
- (d) Subject to Special Review Procedures and Development Standards in Section 19.50.130, including Flood Damage Prevention Ordinance, Chapter 17.48 of the Code.
- (e) Allowed if use is consistent with General Plan Land Use designation and will not conflict with public health, safety, or welfare.
- (f) No minimum setback required. Building and structures are not allowed.
- (g) Zone districts that require a CUP for new oil and gas production wells Per Section 19.98.050 and 19.98.040, allows for standards such as setbacks to be reduced or waived as part of the CUP approval process if it is determined that it would not be detrimental to public welfare and/or adjacent property owners.
- (h) Per Section 19.66.020(A), new wells are to be more than 300 feet from an existing dwelling. Section 19.66.030(A) specifies that wells located closer than 300 feet to an existing residence or buildings used for commercial purposes can be authorized through the issuance of a CUP.

Key:

CalGEM = California Geologic Energy Management Division

CUP = Conditional Use Permit

N/A = Not Applicable

SJVAPCD = San Joaquin Valley Air Pollution Control District

Section 4.2.3, Agricultural and Forest Resources, page 4.2-31

MM 4.2-1 For Oil and Gas Conformity Reviews that are 1) on land designated Prime, Farmland of Statewide Importance, or Unique Farmland; and 2) that have been actively farmed five years or more out of the last 10 years; and 3) have a water allocation sufficient for farming from any source shall have the following siting requirements:

A. All Oil and Gas Conformity Reviews permitted after the effective date of this ordinance shall have a site plan that contains no more than the following area limitations per well. All storage, parking, and oil activities shall be conducted only on the approved site plan acreage.

<u>Subarea</u>	<u>Acreage (Gross)</u>
<u>Western</u>	<u>2.0</u>
<u>Central</u>	<u>3.0</u>
<u>Eastern</u>	<u>1.2</u>

B. No permit for a new well shall be issued if the applicant ~~has~~ owns or controls legacy unused oil and gas equipment on the same legal parcel. An applicant shall be deemed to own or control legacy equipment if, as of the date the application is filed, it is owned by (i) the applicant, (ii) an entity that controls or is controlled by the applicant, or (iii) an entity that has hired the applicant as an independent contractor. The legacy oil and gas equipment shall be removed inclusive of compliance with applicable legal requirements (e.g., well plugging and abandonment requirements under state or federal regulations), and restoration of the surface grade consistent with surrounding lands on the parcel completed before any new wells activity can commence. A full plan and details of actions needed to remove the legacy equipment shall be submitted with the site plan, be shown on a detail of the site plan, and be a condition of the approved permit. For farmland parcels in Tier 1, when both the surface and minerals are owned by the applicant, this measure does not apply.

C. Siting and construction of new disposal ponds are prohibited.

Section 4.2.3, Agricultural and Forest Resources, page 4.2-39

~~Many mineral leaseholds in Kern County are modest in size, limiting the quantity of resources that can be accessed by horizontal drilling across a single parcel. For example, the distribution of lease sizes in Kern County for California Resources Corporation is shown in Table 4.2-18. Over half of the mineral leases are less than 40 acres in size, and 20% of the leases are less than 20 acres, while only 7.26% are 640 acres or greater.~~

~~Table 4.2 18: Mineral Lease Sizes~~

<i>Mineral Lease Size (Acres)</i>	<i># Leases</i>	<i>% of Total</i>
640 and greater	468	7.26
320 – 639.9	501	7.77
160 – 319.9	945	14.66
80 – 159.9	1,208	18.73
40 – 79.9	1,226	19.01
20 – 39.9	750	11.63
< 20	1,350	20.93

~~Source: California Resources Corporation~~**Section 4.3, Air Quality, page 4.3-43**

Recommended measures to prevent infection include frequent hand washing, maintaining physical distance from others, quarantine, covering coughs, and keeping unwashed hands away from the face. The use of cloth face coverings has been recommended by health officials in public settings to minimize the risks of transmission. ~~Currently, there are no vaccines nor specific antiviral treatments for COVID-19.~~ Management involves the treatment of symptoms, supportive care, isolation, and experimental measures. The World Health Organization (WHO) declared the COVID-19 outbreak a public health emergency of international concern on January 30, 2020, and a pandemic on March 11, 2020. ~~Local transmission of the disease has occurred in most countries across all six WHO regions. California's vaccine distribution plan is a multi-phase process that prioritizes vulnerable populations. The timeline for when a sufficient supply of doses will be made available to the entire population is yet unknown. See California Department of Public Health,~~ **COVID-19 Vaccines,** **available at** <https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/COVID-19/COVID-19Vaccine.asp>

Section 4.3, Air Quality, page 4.3-89-90

- MM 4.3-2** The Applicant shall develop and implement a Fugitive Dust Control Plan in compliance with San Joaquin Valley Air Pollution Control District fugitive dust suppression regulations ~~to further reduce emissions, during construction, of particulate matter that is 10 microns or less and 2.5 microns or less in diameter.~~ The Fugitive Dust Control Plan shall include:
- Name(s), address(es), and phone number(s) of person(s) responsible for the preparation, submission, and implementation of the plan.
 - Description and location of operation(s).
 - Listing of all fugitive dust emissions sources included in the operation.
 - The following dust control measures shall be implemented:
 - All onsite unpaved roads shall be ~~effectively~~ stabilized using water or chemical soil stabilizers that can be determined to be as efficient as or more efficient for fugitive

- dust control than California Air Resources Board approved soil stabilizers, and that shall not increase any other environmental impacts including loss of vegetation.
2. All material excavated or graded will be ~~sufficiently~~ watered to prevent excessive dust. Watering will occur as needed with complete coverage of disturbed areas. The excavated soil piles will be watered as needed to limit dust emissions to less than 20% opacity or covered with temporary coverings.
 3. Construction activities that occur on unpaved surfaces will be discontinued during windy conditions when winds exceed 25 miles per hour and those activities cause visible dust plumes that exceed the SJVAPCD 20% opacity standard. ~~Construction activities may continue if dust suppression measures are used to minimize visible dust plumes.~~
 4. Track-out debris onto public paved roads shall not extend 50 feet or more from an active operation and track-out shall be removed or isolated such as behind a locked gate at the conclusion of each workday, except on agricultural fields where speeds are limited to 15 mph.
 5. All hauling materials should be moist while being loaded into dump trucks.
 6. All haul trucks hauling soil, sand, and other loose materials on public roads shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions).
 7. Soil loads should be kept below 6 inches or the freeboard of the truck.
 8. Drop heights ~~should be minimized~~ when loaders dump soil into trucks shall not exceed 5 feet above the truck.
 9. Gate seals should be tight on dump trucks.
 10. Traffic speeds on unpaved roads shall be limited to 25 miles per hour.
 11. All grading activities shall be suspended when visible dust emissions exceed 20%.
 12. Other fugitive dust control measures as necessary to comply with San Joaquin Valley Air Pollution Control District Rules and Regulations.
 13. Disturbed areas ~~should be minimized~~ shall not exceed those shown on the Site Plan.
 14. Disturbed areas should be re-vegetated ~~as soon as possible~~ after disturbance if area is no longer needed for oil and gas activities.

Section 4.3, Air Quality, page 4.3-156

Impacts are potentially significant because the Project will increase PM_{2.5} emissions. While PM_{2.5} emissions from Project implementation will be reduced as much as is feasible with implementation of MM 4.3-1 through MM 4.3-4 and MM 4.3-8, this impact cannot be mitigated to a level of less

than significant as there is currently no vaccine for COVID-19, the timeline for widespread community immunity to COVID-19 is yet unknown. Thus, impacts remain significant and unavoidable even with all feasible mitigation.

Section 4.3, Air Quality, page 4.3-158-159

MM 4.3-5 The Site Plan Application for an Oil and Gas Conformity Review shall include a Site Vicinity Figure showing the location of any sensitive receptor(s) within 4,000 feet of the construction site (potential impact area) for the proposed new well or other ancillary facility or equipment (excluding pipelines).

- a. If there are no sensitive receptors within this potential impact area, then no construction mitigation measures shall be required and the statement shall be placed as a note on the site plan.
- b. The well site and nearest property line of a sensitive receptor shall be permitted using both maps and coordinates on the map. If there are sensitive receptors within the potential impact area, then additional information must be provided showing the distance from the closest edge of the well pad to the property line of the nearest sensitive receptor. The minimum distances shall be as follows:

Well Depth (Feet)	Minimum Mitigation Trigger Distance from Well Site to Adjacent Property Line of an Existing Sensitive Receptor (Feet)
Western Subarea	
10,000	367
5,000	116
2,000	NA
Central Subarea	
10,000	367
5,000	116
2,000	NA
Eastern Subarea	
10,000	296
5,000	NA
2,000	NA

- c. If the well is located within the above distances set forth in (b), above, cannot be met, and for existing wells that are subject to an Oil and Gas Conformity Review for redrilling or other permitted activities, the Applicant shall provide a site-specific risk assessment to the San Joaquin Valley Air Pollution Control District, which shall include implementation of one or more of the following

risk minimization measures, or other such measures that are demonstrated by the Applicant to the San Joaquin Valley Air Pollution Control District, to achieve a level of risk less than the threshold risk level. Written confirmation shall be provided from the San Joaquin Valley Air Pollution Control District that the activity that is the subject of the application will not exceed the risk threshold. The following is a list of accepted risk minimization measures that shall be considered for inclusion by the San Joaquin Valley Air Pollution Control District:

1. Placement of engines in the potential impact area away from the sensitive receptors.
2. Utilize directional drilling to locate rig away further from the sensitive receptor(s).
3. Use of late-model engines, low-emission diesel products, alternative cleaner fuels (e.g., natural gas or liquefied petroleum gas), engine retrofit technology, add-on devices such as diesel particulate filters or oxidation catalyst, and/or other options as such become available to reduce emissions from off-road and other equipment.
4. Utilize electricity line power if available or deploy mobile solar panels with batteries for electricity.
5. Shutdown all equipment when not in use, and otherwise minimize engine idling by limiting idling to 15 minutes.
6. Use of automatic rigs.
7. Written confirmation from the identified sensitive receptor or receptors that the residents, business, church, or school agree to voluntary relocation or restrictions on receptor activities for the duration of construction activities with a specific timeframe for completion and details of any agreement.

Section 4.9, Hydrology and Water Quality, page 182

Wastewater and other operations-related fluids and chemicals can be spilled as a result of equipment leaks, including from pipes and storage tanks, as well as from casing and cement failures and human error, including from accidents involving the surface transport of products used ~~as~~ sand produced by the oil and gas industry.

Section 4.9, Hydrology and Water Quality, page 4.9-187

McMahon, P.B. et al. (2019). Occurrence and Sources of Radium in Groundwater Associated with Oil Fields in the Southern San Joaquin Valley, California. In this study, geochemical data from 40 water wells were used to examine the occurrence and sources of radium in groundwater associated with three oil fields in California (Fruitvale, Lost Hills, South Belridge). ~~**This study is not specific to Kern County.**~~

Section 4.9, Hydrology and Water Quality, page 193-196**MM 4.9-2** A. Oil and Gas activities in Tier I shall comply with the following.

1. In areas subject to National Pollutant Discharge Elimination System stormwater permitting requirements, project applicants shall file a Notice of Intent to the State Water Resources Control Board to comply with the statewide General Permit for Discharges of Stormwater Associated with Construction Activities (Construction General Permit State Water Resources Quality Control Board Order No 2009-009-DWO) (as such permit may be amended, revised or superseded) prior to undertaking all ground-disturbing activities greater than one acre and shall prepare and implement a Stormwater Pollution Prevention Plan for construction activities on the Project site in accordance with the Construction General Permit. For facilities requiring coverage under the Construction General Permit, the site-specific Stormwater Pollution Prevention Plan shall include measures to achieve the following objectives: (1) all pollutants and their sources, including sources of sediment associated with construction activity are controlled; (2) all non-stormwater discharges are identified and either eliminated, controlled and treated, (3) site Best Management Practices are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity and (4) stabilization Best Management Practices to reduce or eliminate pollutants after construction are completed. The Stormwater Pollution Prevention Plan shall be prepared by a qualified preparer and shall include the minimum Best Management Practices required for the identified risk level. The Stormwater Pollution Prevention Plan shall include a construction site monitoring program that identified requirements for dry weather visual observations of pollutants at all discharge locations and, as applicable, depending on the project risk level, sampling of site effluent and receiving waters. A qualified Stormwater Pollution Prevention Plan practitioner shall be responsible for implementing and all monitoring for the Best Management Practices as well as all inspection, maintenance and repair activities at the project site. If applicable, each project shall also implement and fully comply with the Industrial Storm Water Permit (Order No 97-03-DWO) and Kern County Municipal Stormwater Permit (Order No 5-01-120). All plans under these requirements shall be submitted to Kern County Public Works for review and approval.
2. Any operator of a facility that meets the following requirements is not required to be covered by the Construction General Permit (State Water Regional Control Board Memorandum dated 5-18-2010) for:
 - a. discharges of stormwater runoff from oil and gas exploration, production, processing or treatment operations or transmission facilities, including field activities or operations that may be considered construction activity;

1. are not contaminated by contact with, or do not come into contact with, any overburden, raw material, intermediate products, finished product, byproduct or waste products;
2. are only contaminated by or only come into contact with sediment; and
3. pursuant to 40.CFR § 122.26(c)(1) (iii) that do not contribute to a violation of a water quality standard.

Any change to this State Water Regional Control Board determination will require full compliance with National Pollutant Discharge Elimination System requirements.

3. Any operator not subject to National Pollutant Discharge Elimination System stormwater permitting requirements shall implement Best Management Practices during construction and operation. All selected practices shall be shown on a drainage implementation plan and self-certified as complete ~~and feasible~~ by a licensed professional qualified in drainage and flood control issues. The plan shall be submitted to the Kern County Planning and Natural Resources ~~Community Development Department~~ department. The following Best Management Practices shall be implemented and shown on the drainage implementation plan:
 - a. Utilizing established facilities design and construction ~~or similar~~ standards ~~as appropriate~~ applicable to the specific activity (e.g., American Society for the Testing and Materials (ASTM) American Petroleum Institute (API)).
 - b. Implementing ~~ation~~ good housekeeping and maintenance practices:
 - i. Preventing trash, waste materials and equipment from construction storm water.
 - ii. Maintaining wellheads, compressors, tanks and pipelines in good condition without leaks or spills.
 - iii. Designing and maintaining graded pads to not actively erode and discharge sediment
 - iv. Maintaining vehicles in good working order
 - v. Providing secondary containment for all aboveground storage tanks and maintaining such containment features in good operating condition
 - c. Implementing spill prevention and response measures:
 - i. Utilizing preventative operating practices such as tank level monitoring, safe chemical handling and conducting regular inspections.

- ii. Developing and maintaining a spill response plan
 - iii. Conducting spill response training for employees and have a process to ensure contractors have the necessary training
 - iv. Maintaining spill response equipment on site.
- d. Implementing material storage and management practices:
- i. Preventing unauthorized access
 - ii. Utilizing “run-on” and “run-off” control berms and swales
 - iii. Stabilizing exposed slopes through vegetation and other ~~appropriate~~ standard slope stability methods ~~(e.g., hay bales or rolls)~~.
- B. Oil and gas activities outside Tier 1 shall comply with all applicable state and federal stormwater management laws. For any oil and gas activity outside Tier I that is not subject to state or federal stormwater management laws, regulations or general permits, the Applicant shall prepare a drainage plan that complies with requirements to address that is designed to minimize runoff and minimize the potential for impeding or redirecting 100-year flood flows. The drainage plan shall be prepared in accordance with the Kern County Grading Ordinance, Kern County Green Code, Development Standards and approved by the Kern County Department of Public Works, Floodplain Management Section. The drainage plan shall specify best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sedimentation or any other pollutants from moving offsite and into receiving waters. The requirements of the Plan shall be incorporated into design specifications. Recommended best management practices for the construction phase must be shown on a drainage plan, and shall include the following:
- a. Erosion Control -
 - 1. Scheduling of construction activities to avoid rain events.
 - 2. ~~Limiting vegetation removal to the minimum required. Implementing runoff erosion control methods consistent with the drainage plan when vegetation has been removed.~~
 - b. Sediment Control -
 - 1. Secure stockpiling of soil.
 - 2. Installation of a stabilized construction entrance/exit and stabilization of disturbed areas.
 - c. Non-stormwater Control -
 - 1. ~~Proper~~ Fueling and maintenance of equipment and vehicles shall be managed so as to prevent contamination of runoff from the site.
 - 2. Proper Concrete handling techniques shall be consistent with the drainage plan and shall comply with Mitigation Measure 4.4-15(m).

d. Waste and Material Management -

1. ~~Properly~~ Managing construction materials, consistent with the drainage plan and designating construction staging areas in or around the Project site.
2. Stockpiling and disposing of demolition debris, concrete, and soil properly in compliance with regulatory requirements and consistent with the drainage plan.
3. Prompt removal and ~~proper~~ disposal of litter.
4. ~~Proper~~ Disposal of demolition debris, concrete and soil in compliance with regulatory requirements for solid waste.
5. Provide and maintain ~~adequate~~ secondary containment to prevent minimize or eliminate pollutants from moving offsite and into receiving waters in compliance with Mitigation Measure 4.8-3.

e. Post-Construction Stabilization -

1. Ensuring the stabilization of all disturbed soils per revegetation or application of a soil binder.

C. If construction activities will alter federal jurisdictional waters, project applicants shall comply with the federal Clean Water Act Section 404 and Section 401 permitting and certification requirements. If construction activities will alter state waters, project applicants shall comply with California Department of Fish and Wildlife Streambed Alteration requirements.

Section 4.12, Noise, page 4.12-51-53**MM 4.12-1 Construction**

The Site Plan Application for an Oil and Gas Conformity Review shall include a Site Vicinity Figure showing the location of any sensitive receptor(s) within 4,000 feet of the construction site (potential impact area) for the proposed new well or other ancillary facility or equipment (excluding pipelines). For any ~~permit~~ Applicant intending to process an Exploratory Well Permit with CalGEM, the Site Vicinity Figure shall show the locations of any sensitive receptors within 8,000 feet of the construction site. A sensitive receptor is defined as a single or multi-family dwelling unit, place of public assembly (a legally permitted place where 100 or more people gather together in a building or structure for the purpose of amusement, entertainment, or retail sales), church, institution, school, or hospital.

The site plan shall comply with the following details:

1. Determination of Distance

- a. If there are no sensitive receptors within this potential impact area, then no construction mitigation measures **for noise** shall be required and the statement shall be placed as a note on the site plan.

- b. The well site and nearest property line of a sensitive receptor shall be shown on the site plan using both feet and coordinates. If there is a neighborhood of sensitive receptors then the site plan shall identify the nearest group. If there are sensitive receptors within the potential impact area, then additional information must be provided showing the distance in feet and coordinates from the closest edge of the well pad to the property line of the nearest sensitive receptor.
- c. Table 1, below, shall be used to identify the mitigation trigger distance for the activity and a note placed on the site plan identifying the specific listed construction activity and mitigation trigger distance.
- d. If the nearest sensitive receptor property line is closer than the distance on Table 1, Construction Noise Mitigation Trigger Distance, then noise reduction measures to reduce impacts to the following Noise Standards shall be implemented:

Noise Standards

- For locations where the ambient level is below 65 dB, noise levels from construction activities may not increase the existing ambient level at the property line of the sensitive receptor by more than 5dB and may not exceed 65 dB at the property line of the sensitive receptor;
- For locations where the ambient level is at or in excess of 65 dB, noise levels from construction activities may not increase the existing ambient level at the property line of the sensitive receptor by more than 1 dB.

Table 1: Construction Noise Mitigation Trigger Distances

<u>Activity</u>	<u>Mitigation Trigger Distance (feet) For distance to closest sensitive receptor</u>
<u>Drilling (Well Advancement)</u>	<u>3,900</u>
<u>Drilling (Pull Out of Well/Borehole)</u>	<u>2,350</u>
<u>Large-Scale Exploratory Drilling^(a)</u>	<u>7,900</u>
<u>Well Workover</u>	<u>2,355</u>
<u>Hydraulic Fracturing</u>	<u>2,965</u>

Note:

^(a) Kenai Drill Rig #7

- e. If a sensitive receptor is located within the noise mitigation trigger distances identified in Table 1, the activity location must either be relocated to achieve the distance as a setback, or an Acoustic Noise Reduction Report with mandatory noise reduction measures shall be prepared and submitted to show how to achieve the Noise Standard. The mitigation trigger distances and ambient noise levels are measured from the legal parcel property line facing the well pad site of the closest sensitive receptor.

2. Acoustic Noise Reduction Report

- a. An Acoustic Noise Reduction Report completed by a qualified professional shall be provided in conjunction with the application if the identified mitigation trigger distance will not be met. The report and submitted site vicinity map shall include all dimensions and detailed notes, based on the Acoustic Noise Reduction Report detailed in this measure.
- b. Clearly marked distances in feet and with coordinates from the construction location on the well site to the nearest sensitive receptors, including both the exterior wall of the receptor and the property line within the potential impact area.
- c. Notes showing the average day-night level over a 24-hour period (DNL or Ldn) of ambient outdoor noise level at the proposed well location and at the property line of the nearest identified sensitive receptors that face the drill site over a 24-hour period.
- d. Specific details from the Acoustic Noise Reduction Report specifying the level of project activity noise at the property line of the sensitive receptor allowed under the Noise Standard and the projected level of noise from the Project activity before implementation of noise reduction measures and after implementation of noise reduction measures.
- e. The report shall identify and include the specific noise reduction method or methods that will be implemented and shall not include options for compliance. Any changes to the selected method or methods of compliance after approval will require submission of an amended Acoustic Noise Reduction Report reflecting the new selection.
 1. Placement of a temporary sound attenuation wall(s) on property controlled by the applicant or with written permission from the property owner in compliance with Chapter 19.98.
 2. Construction of a temporary berm on property controlled by the applicant or with written permission from the property owner in compliance with Chapter 19.98.
 3. Specific orientation of the drilling equipment on the well site and modification of equipment to reduce noise impacts.
 4. Implementation of other detailed sound reduction technologies or practices with evidence from the qualified professional of the reductions achieved.
 5. Written confirmation from the occupants of the sensitive receptor(s) of their voluntary, temporary relocation or business restrictions during a defined construction period.

3. Monitoring

For the duration of the construction the following measurements shall be submitted to the Kern County Planning and Natural Resources Department at the required intervals. The measurements shall show achievement of the stated average day-night noise level stated on the Site Plan. If the measurement does not show the level is achieved, additional measures must be proposed and

installed to prevent a stop work notice. Failure to submit within one business day after taking the required measurements will result in a stop work notice.

- a. 24 hours after completion of all noise attenuation measures and commencement of drilling or rework activities, the applicant shall take a measurement ~~at~~ of the ambient level at the property line of the identified, nearest sensitive receptor.
- b. Every 14 days after commencement of activities, the applicant shall take a measurement at the ambient level at the property line of the identified, nearest sensitive receptor until completion of construction activities.
- c. All installed noise attenuation measures shall be maintained throughout all construction phase activities.

Section 4.12, Noise, page 4.12-54-56

MM 4.12-2 Operation

1. Mandatory Setbacks

The following are distances for a setback that can only be reduced by the processing and approval of a Conditional Use Permit with further environmental review under CEQA.

- a. New oil and gas wells shall be a minimum of two hundred and ten (210 feet) from the closest sensitive receptor for the following uses: single or multi-family dwelling unit, place of public assembly (a legally permitted place where 100 or more people gather together in a building, or structure, for the purpose of amusement, entertainment, or retail sales), church, institution or hospital.
- b. New oil and gas wells shall be a minimum of three hundred (300) feet ~~of~~ from the legal parcel property line that contains a permitted public or private school. A single family or multi-family dwelling unit that may have home schooling activities shall use the single family dwelling unit distance.
- c. Geophysical testing methods using vibroseis vehicles to generate sound waves shall be a minimum of one hundred and fifty (150) feet from the closest occupied building, water well, sewer system, and septic tank. Geophysical testing methods using shotholes that employ explosives shall be a minimum of three hundred (300) feet from the closest occupied building, water well, sewer system, and septic tank and shall be in full compliance with all laws governing explosives.

2. Site Vicinity Figure

The Site Plan Application for an Oil and Gas Conformity Review shall include a Site Vicinity Figure showing the location of any sensitive receptor(s) within 4,000 feet of the construction site (potential impact area) for the proposed new well or other ancillary facility or equipment (excluding pipelines). A sensitive receptor is defined as a single or multi-family dwelling unit, place of public assembly (a legally permitted place where 100 or more people gather together in a building or

structure for the purpose of amusement, entertainment, or retail sales), church, institution, school, or hospital.

The site plan shall comply with the following details:

3. Determination of Distance

- a. If there are no sensitive receptors within this potential impact area, then no permanent operational noise mitigation measures shall be required and the statement shall be placed as a note on the site plan.
- b. If the well site is between two hundred and ten (210) feet and six hundred and fifty (650) feet **from the closest edge** of the well pad and nearest property line of a sensitive receptor other than a school, then it shall be shown on the site plan. If the well site is between three hundred (300) feet and six hundred and fifty (650) feet of the property line of a legally permitted public or private school, then it shall be shown on the site plan. If there is a neighborhood of sensitive receptors then the site plan shall identify the nearest group.
- c. Location of a well between two hundred and ten (210) feet **from all sensitive receptors with the exception of schools**) or three hundred (300) feet (from schools) and six hundred and fifty (650) feet **from the closest edge** of the well pad and nearest property line of a sensitive receptor shall require either details of the use of electric power for the well production which will mitigate the noise or the submittal of an Acoustic Noise Reduction Report if diesel power is used for the well production.

4. Acoustic Noise Reduction Report

- a. An Acoustic Noise Reduction Report completed by a qualified professional shall be provided in conjunction with the application for any well sited between two hundred and ten (210) feet and six hundred and fifty feet (650) feet of the well pad and nearest property line of a sensitive receptor that will use diesel power for the well production. The report and submitted site vicinity map shall include all dimensions and detailed notes, based on the Acoustic Noise Reduction Report detailed in this mitigation measure. The report shall be based on the following noise standard'
- b. Noise Standards
 - For locations where the ambient level is below 65 dB, noise levels from operation of the well may not increase the existing ambient level at the property line of the sensitive receptor by more than 5dB and may not exceed 65 dB at the property line of the sensitive receptor.
 - For locations where the ambient level is at or in excess of 65 dB, noise levels from operation of the well may not increase the existing ambient level at the property line of the sensitive receptor by more than 1 dB.
- c. The site plan shall include notes showing the average day-night level **over a 24-hour period** (DNL or L_{dn}) of ambient outdoor noise ~~level~~ at the proposed well location and

at the property line of the nearest identified sensitive receptors that faces the drill site over a 24-hour period.

- d. Specific details from the Acoustic Noise Reduction Report specifying the level of operational noise at the property line of the sensitive receptor allowed under the Noise Standard and the projected level of noise from the operational noise before implementation of noise reduction measures and after implementation of noise reduction measures.
- e. If a permanent wall or solid barrier type material is utilized as a noise reduction measure, the holder of the Oil and Gas Conformity permit is responsible for obtaining any and all building permits required, maintenance and graffiti removal for the life of the oil well or group of wells being mitigated. No landscaping is required for the wall. The wall shall be removed when the well is abandoned and plugged. Requests to delete these requirements will require the processing and approval of a Conditional Use Permit.

Section 4.18, Supplemental Analysis, page 4.18-15

MM 4.4-3 Protective buffers shall be used, where effective ~~and feasible~~ in the opinion ~~and guidance~~ of the qualified biologist, to avoid any unauthorized incidental take of Protected Species, and to minimize any incidental take of Sensitive Species, by separating the planned disturbance area from any locations where the qualified biologist biological reconnaissance surveys, previously conducted focused/protocol surveys, or pre-disturbance surveys have has detected the presence of Protected Species or Sensitive Species. Protective buffers shall be delineated using brightly colored stakes and/or flagging or similar materials and remain until construction activities are complete, at which time of completion the buffers must be removed. ~~If special-status plant or animal species are found adjacent to the project during biological surveys,~~ Protective buffers shall be established around active dens and/or burrows of special-status animal species, or populations of special-status plant species to avoid unauthorized take of protected species as listed in the table below. The protective buffer distance shall be increased if required to avoid unauthorized incidental take of any Protected Species as determined by a qualified biologist. Protective buffer distances and other avoidance measures that may be implemented to avoid impacts to Protected Species or Sensitive Species must be consistent with the United States Fish and Wildlife Service and/or the California Department of Fish and Wildlife requirements, and shall be implemented and overseen by ~~at the~~ qualified biologist.

Disturbance Buffers for Sensitive Resources

Sensitive Resource	Buffer Zone from Disturbance (feet)
Potential San Joaquin kit fox den	50
Known San Joaquin kit fox den	100
Natal San Joaquin kit fox den	Contact California Department of Fish and Wildlife, United States Fish and Wildlife Services 500
Atypical San Joaquin kit fox den	50
Rodent burrows	50
Listed bird species active nests	0.5 mile
Burrowing owl burrow (breeding and non-breeding season)	Pursuant to California Department of Fish & Wildlife guideline (see Table 4.4-85)
San Joaquin coachwhip, all silvery legless lizard <u>species</u> , coast horned lizard	30
American badger:	
Non-maternity dens	50
Maternity dens	200
Special-status plants	50

Section 4.18, Supplemental Analysis, page 4.18-30

- MM 4.5-3** All permits for new wells that use Enhanced Oil Recovery or Well Stimulation methods shall ~~pay a~~ ***be charged a*** mitigation fee of \$50 per well ~~shall be paid for to~~ the Buena Vista Museum to fund the continued education and curation of paleontological resources and provide educational support regarding the paleontological history of the region.

Section 4.18, Supplemental Analysis, page 4.18-37-39

- MM 4.8-3** The Applicant shall implement the following practices *based on practices and standards established by the United States Department of Labor Occupational Safety and Health Administration (OSHA) safety standards and as amended or modified by the State of California Department of Industrial Relations, Division of Occupational Safety and Health (DOSH – Cal/OSHA) and the Kern County Fire Department.*

- a. Construction activities shall be conducted to allow for easy clean-up of spills. Construction crews shall have ~~sufficient the appropriate number of~~ tools, supplies, and absorbent and barrier materials *as necessary* to contain and recover spilled materials.
- b. Fuels and lubricants shall be stored only at designated staging areas. Fuel and lubricant tanks shall have ~~appropriate~~ secondary spill containment (e.g., curbs). Compliance with laws and regulations is required, including

compliance with hazardous materials and hazardous waste storage laws, as applicable.

- c. Storage of fuel and lubricants in the staging area shall be at least 100 feet away from the edge of water bodies. Refueling and lubrication of equipment shall be restricted to upland areas at least 100 feet away from stream channels and wetlands.
- d. Any fuel truck shall carry an oil spill response kit and spill response equipment at all times.
- e. Applicants shall be required to perform all routine equipment maintenance at the well pad or other suitable locations (~~Li.e.~~, maintenance yards), and promptly collect and lawfully dispose of wastes in compliance with existing regulatory requirements.
- f. Berms and/or dikes (secondary containment) shall be constructed around the permanent above-ground bulk tanks and the foundations shall be installed with a passive leak detection system, so that potential spill materials shall be contained and collected in specified areas isolated from any water bodies. Tanks shall not be placed in areas subject to periodic flooding or washout. Compliance with laws and regulations is required, including compliance with hazardous materials and hazardous waste storage laws as applicable, including for secondary containment, such as ~~Division of Oil, Gas and Geothermal Resources~~ Geologic Energy Management Division regulation (Title 14, C.C.R. § 1773.1), which requires secondary containment in "an engineered impoundment such as a catch basin, which can include natural topographic features, that is designed to capture fluid released from a production facility."
- g. ~~A sufficient~~ The ~~appropriate~~ amount and supply of sorbent and barrier materials shall be maintained on construction sites consistent with CalOSHA regulations for the type and level of construction activities. Sorbent and barrier materials shall also be utilized to contain runoff from contaminated areas ~~consistent with CalOSHA regulations where appropriate~~.
- 4h.** Shovels and drums shall be stored at each well pad or be readily available. If small quantities of soil become contaminated, hand tools ~~such as shovels or other appropriate tools~~, shall be used to collect the soil and the material shall be stored in storage drums. Large quantities of contaminated soil may be bio-remediated on-site or at a designated remediation facility, subject to government approval, or collected utilizing heavy equipment, and stored in drums or other ~~suitable~~ containers approved for use and physically capable of containing the material prior to disposal. Should contamination occur adjacent to staging areas as a result of runoff, shovels and/or heavy equipment shall be utilized to collect the contaminated material. Contaminated soil shall be disposed of in accordance with state and federal regulations.

- ~~2j.~~ Above-ground tanks, valves and other equipment shall be visually inspected monthly and when the tank is refilled. Inspection records shall be maintained. Applicants shall periodically check tanks for leaks or spills.
- ~~3j.~~ Drain valves on all tanks shall be locked to prevent accidental or unauthorized discharges from the tank.
- ~~4k.~~ Equipment maintenance shall be conducted in staging areas or other suitable locations, ~~(i.e., such as, maintenance shops or yards.)~~
- ~~5l.~~ The Applicant shall maintain equipment in operating condition to reduce the likelihood of fuel or oil line breaks and leakage. Any vehicles with chronic or continuous leaks shall be removed from the site and repaired before being returned to operation.
- ~~h. Applicants are encouraged, but not required, to use an alternate to silica sand as a proppant, after Division of Oil Gas and Geothermal Resources has determined that such an alternative does not introduce new hazards.~~

Section 4.18, Supplemental Analysis, page 4.18-39-40

- MM 4.8-4** The Applicant shall implement the following measures to prevent, repair, and remediate accidental leaks and spills from oil and gas operations.
- a. The Applicant shall identify gas, oil and produced water pipelines to be used for each new or reworked well site in its Site Plan, and shall show the location of any sensitive receptor located within 300 feet of any such pipeline. For any pipeline located within 300 feet of a sensitive receptor, the Applicant shall present evidence that each such pipeline has been integrity tested using pressure testing or other accepted test methods by a qualified professional within a two-year period prior to submittal of the Site Plan, and shall provide a copy of the test result to the County. For all waste gas lines less than or equal to 4 inches in diameter, a Pipeline Management Plan shall be developed and implemented in accordance with California Geologic Energy Management Division regulations Title 14, Division 2, Chapter 4, Section 1774.2. The Pipeline Management Plan shall include:
 - 1. A listing of information on each pipeline including, but not limited to: i. Pipeline type. ii. Grade. iii. Installation date of pipeline. iv. Design and operational pressure. v. Any leak, repair, inspection and testing history.
 - 2. A description of the testing method and schedule for all pipelines.
 - b. The Applicant shall notify the Kern County Public Health Services Environmental Health Division, Certified Union Program Agency (CUPA), surface landowner, and sensitive receptors located within 300 feet, of any hazardous materials/waste release immediately upon discovery, and to other applicable agencies as required by other laws. The Applicant shall immediately contain the leak (e.g., by isolating or shutting down the leaking

equipment), clean up contaminated media (e.g., soils), and repair the leak prior to recommencing operations. The Applicant shall report the status and progress of the leak repair and remediation work to the County and the CUPA on monthly intervals or predetermined intervals until the repair has been completed. Contaminated media shall be analyzed according to 22 C.C.R. §§ 66261.21-66261.24 for determination of hazardous waste disposal subject to the Hazardous Waste Determination procedures provided in 22 C.C.R. §66262.11.

- c. As part of the Site Plan, the Applicant shall identify the location and right of way for all pipelines to be used for the transport of oil, gas, and produced water, including pipelines that intersect the main transport line, based on existing data and using commercially available technology, and, based on the results of this analysis, shall identify any sensitive receptors within 300 feet of the pipeline for purposes of complying with Mitigation Measure 4.8-4. Mechanical integrity testing of all such pipeline lengths within 300 feet of a sensitive receptor shall be required pursuant to Mitigation Measure 4.8.4-a.
- d. If a release, identified pursuant to subsection (b), cannot be repaired or remediated within 48 hours, and has potential impact to sensitive receptors, the Applicant shall incur costs to sample and analyze the potentially affected area, which may include soil, groundwater, outdoor or indoor air of sensitive receptors within 300 feet of the leak. Applicant shall pay all temporary relocation costs (e.g., housing, food, and transportation) for any exposed sensitive receptor until such time as the leak has been repaired and post-repaired indoor air testing has been completed, as confirmed by identified agency having oversight of the remediation.*

Section 4.18, Supplemental Analysis, page 4.18-40-42

- MM 4.8-6** The Applicant shall implement measures to prevent the release or accidental spillage of solid waste, garbage, construction debris, sanitary waste, industrial waste, naturally occurring radioactive materials, oil and other petroleum products, and other wastes into water bodies or water sources, including all applicable practices included in the most up-to-date versions of the following documents: Exemption of Oil and Gas Exploration and Production Wastes From Federal Hazardous Waste Regulations (EPA 2002). Equivalent industry standards such as Environmental Protection for Onshore Oil and Gas Productions and Leases (American Petroleum Institute 2009) and related standards may also be utilized, provided that a professional engineer, certified industrial hygienist or certified safety professional certifies to the County that such standards are as or more protective of human health and the environment, as compared to the standards in

the referenced Environmental Protection Agency manual. The following are practices and standards that shall be implemented.

- a. Classify the various oil and gas exploration and production wastes for disposal as described in United States Environmental Protection Agency 2002, and in accordance with applicable California laws and regulations.
- b. Size reserve pits to provide the physical capacity necessary to avoid overflows.
- c. Use closed loop mud systems with oil-based muds except in compliance with State Water Resources Board or Regional Water Quality Control Board requirements as provided in Mitigation Measure 4.9-3.
- d. Review safety data sheets of materials used, and use the less toxic material for the operation. ~~select less toxic alternatives when possible.~~
- e. Design systems with ~~necessary the smallest~~ volumes for drilling mud systems to accomplish drilling operations on the CalGEM Permits possible (e.g., drilling mud systems).
- f. Prevent accumulation ~~Reduce the amount~~ of excess fluids entering reserve and production pits beyond what is physically needed for maintaining well control.
- g. Keep non-exempt wastes out of reserve or production pits.
- h. Design the drilling pad to contain stormwater and rigwash.
- i. Recycle and reuse oil-based muds and high density brines, when such recycling and reuse complies with hazardous waste laws and recycling laws.
- j. Perform routine equipment inspections and maintenance to prevent leaks or emissions.
- k. Reclaim oily debris and tank bottoms when such reclamation complies with hazardous waste laws and recycling laws.
- l. Store only the volume of materials at facilities necessary for permitted work.
- m. Construct berms around materials and waste storage areas that meet engineering standards to contain spills.
- n. Perform routine inspections of materials and waste storage areas to locate damaged or leaking containers.
- o. Train personnel in all waste management practices required by the mitigation measures, all legal standards and the permits issued by Kern County, CalGEM and all regulatory agencies.

Section 4.18, Supplemental Analysis, page 4.18-43-44

MM. 4.8-8 Applicants shall use the accepted engineering standards for California oil operations recognized as safe and effective by CalGEM and other state and local regulatory agencies, including **applicable** American Petroleum Institute Standards **such as those listed below**, or other recognized sources imposing the same or equivalent standards, for their facility; operations and permitting. ~~Applicants and shall comply with the most stringent standards applicable to the specific operation such as the following:~~

- a. Use cements and well materials in well completions as described in Specifications for Cements and Materials for Well Cementing (American Petroleum Institute 2011).
- b. Prior to start-up of all new facilities, verify and prove the construction, installation, integration, testing, and preparation of systems have been completed as designed following the practices described in Facilities Systems Completion Planning and Execution (American Petroleum Institute 2013a).
- c. When the use of centralizers and stop-collars are required during well completion activities, follow the installation and testing requirements described in Recommended Practice for Centralizer Placement and Stop-collar Testing (American Petroleum Institute 2010a).
- d. Limit the environmental footprint of oil and gas exploration and production and reduce the incidence of releases of hazardous substances by complying with following the practices described in Environmental Protection for Onshore Oil and Gas Production Operations and Leases (American Petroleum Institute 2009).
- e. ~~Minimize-Eliminate~~ improper disposal by ~~following-complying with the~~ practices described in American Petroleum Institute Order No. G00004, Guidelines for Commercial Exploration and Production Waste Management Facilities (American Petroleum Institute 2001) or other recognized legal methods. All disposal must follow applicable laws, regulations, and receiving facilities' permit requirements. All disposal must follow applicable laws, regulations, and receiving facilities permit requirements. ~~These guidelines discuss the relevant regulations and permitting requirements; siting, construction, and technical consideration for various waste disposal options; as well as mitigation options.~~
- f. ~~Minimize-Limit~~ the environmental footprint of exploration and production activities by complying with following the practices described in Land Drilling Practices for Protection of the Environment (American Petroleum Institute 2010b) or other engineering guidance documents as accepted by CalGEM, recognized sources.

- g. When pressure testing is required by State or federal law, prior to pressurizing or re-pressurizing petroleum product pipelines *by complying with, following* ensure the integrity of pipelines by complying with the practices described in Recommended Practice for the Pressure Testing of Steel Pipelines for the Transportation of Gas, Petroleum Gas, Hazardous Liquids, Highly Volatile Liquids, or Carbon Dioxide (American Petroleum Institute 20 13b) or other *engineering guidance documents as accepted by CalGEM, recognized sources.*
- h. To ~~minimize~~ *prevent* releases of hazardous substances during oilfield construction, all pit and sump operations shall be conducted in accordance with State Water Resources Control Board General Orders ~~appropriate~~ or Regional Water Quality Control Board waste discharge requirements or general orders *or other legal requirements applicable to oil and gas exploration, extraction and well stimulation activities.*

Section 4.18, Supplemental Analysis, page 4.18-15

- MM 4.8-15** The Applicant who intends to use acutely hazardous chemicals, including chemicals at or above the specified threshold quantities or a process which involves a Category 1 flammable gas or a flammable liquid with a flashpoint below 100 degrees Fahrenheit (37.8 degrees Celsius) on site in one location, in a quantity of 10,000 pounds (4535.9 kilograms) or more according to 8 California Code of Regulations Section 5189, Appendix A, within 0.25 mile from a school must *prepare a Spill Prevention, Control, and Countermeasures Plan which includes details of the following measures as well as those contained in the regulations:*
- a. Evaluate whether other alternative chemicals that are less hazardous could be used *and provide an explanation on why other less hazardous chemicals cannot be used.*
 - b. *Include* ~~Ensure~~ *specific details* on ~~that~~ the smallest quantity of ~~necessary~~ acutely hazardous materials *that are needed for the specific activity and that will be* stored on site.
 - c. Notify the occupants of the school buildings when and where acutely hazardous materials would be used.
 - d. Notify Kern County Fire Department about the details of the use of acutely hazardous materials (e.g., when, where, how much).
 - e. Ensure that all employees who would contact the acutely hazardous materials are trained on the handling, transport, storage, and disposal of the materials.
 - f. Ensure that all employees who would contact the acutely hazardous materials are trained and are provided the OSHA mandated ~~proper~~ personal protective equipment.

- g. Ensure that all employees who would contact the acutely hazardous materials are trained and have exercised on the Spill Prevention, Control, and Countermeasures Plan that addresses these chemicals.

Section 4.18, Supplemental Analysis, page 4.18-58

- MM 4.8-21** The Applicant ~~should~~ shall restrict the use of chainsaws, chippers, vegetation masticators, grinders, tractors, torches, and explosives at its locations, and ensure the sites where this equipment is used are equipped with portable or fixed fire extinguishers and/or a water tank, with hoses, fire rakes, and other tools to extinguish and or control incipient stage fires. The Worker Environmental Awareness Program shall include fire prevention and response training for workers using these tools.

Section 4.18, Supplemental Analysis, page 4.18-60

- MM 4.14-1** Applicant shall provide funding in the amount of \$ 425 per Oil and Gas Conformity Review permit issued for the Sheriff's Rural Crime Unit. Funding shall be used for one Sergeant, two Senior Deputies (investigators), three Deputies, One Support Technician (clerical) and helicopter usage, combinations of staffing required for use of the funding based on the amount of funding provided collected by this permit mitigation fee. The Sheriff's department shall annually report on the expenditure of funds for the Rural Crimes Unit, including incident reports and response times. If other sources of funding for the Rural Crimes Unit are secured, then the mitigation amount shall be adjusted to pay only the gap between actual costs and funding provided from other sources.

Chapter 6, Alternatives, page 6-13

The Drilling Ban on Agriculturally Productive Land Alternative is identical to the Project, except that it would amend Chapter 19.98 of the Zoning Ordinance to prohibit all new oil and gas exploration, development, and production activities on lands zoned either Exclusive Agricultural (A) or Limited Agricultural (A-1), if such land is being used for agricultural production at the time of drilling permit application. If this alternative were implemented, ~~the Project's agricultural mitigation program, as set forth in~~ Mitigation Measure 4.2-1 would not apply. As a result, ~~there would be less agricultural land conserved in perpetuity in the County. Also,~~ there would be less restoration of agricultural land to productive use through the removal of legacy oil and gas production equipment than would occur under the Project. Moreover, under this alternative, it is more likely that otherwise prohibited oil and gas activities on agricultural lands would be displaced to non-agricultural lands with greater habitat and wildlife resource values than typically found on previously disturbed and actively farmed irrigated agricultural land, potentially causing greater overall environmental harm. This alternative could result in more horizontal and directional subsurface drilling activities needed to recover subsurface oil and gas resources located outside of agricultural zoning districts. This additional horizontal and directional subsurface drilling activity would generate greater toxic air, greenhouse gas, and air quality contaminant emissions than the

proposed Project. Horizontal and directional drilling activities generally require more time to complete than vertical drilling activity typically associated with Kern County oil and gas well development. Longer drilling periods require the additional combustion of fossil fuels that cause polluting emissions. In addition, since the vast majority of the Project Area would be off-limits to oil and gas activities under this alternative, Alternative 3 is legally infeasible due to legal restrictions on the County's authority to prohibit access to subsurface mineral interests without liability. For these reasons, the Drilling Ban on Agriculturally Productive Land Alternative is rejected for analysis in this EIR.

Chapter 6, Alternatives, page 6-34

Local jurisdictions in other states, including Colorado, New Mexico, Oklahoma, Pennsylvania, Texas, and Wyoming, have established minimum setback distances between oil and gas facilities and sensitive land uses such as residences, most ranging between 500 and 1,500 feet (Minner 2015). In November 2020, the Colorado Oil and Gas Conservation Commission adopted a setback of 2,000 feet from homes and schools, subject to certain exceptions. As noted in a detailed analysis of setback distances in the Dallas-Fort Worth, Texas, area, "there is no uniform setback distance, distances have increased over time, and, rather than technically-based, setbacks are political compromises" (Fry 2013).

7.3.2 Public Workshop (November 10, 2020)

As described in Section 7.1.2, a virtual public workshop was held on November 10, 2020, via Microsoft Teams Live Event. The purpose of the public workshop was to provide information to interested parties on the structure and content of the Draft SREIR (October 2020) and provide information on opportunities to comment on the Draft SREIR (October 2020).

The workshop was conducted virtually online in compliance with the EO N-29-20. On March 17, 2020, Governor Newsom issued EO N-29-20 to provide flexibility for agencies to conduct public events in light of the COVID-19 pandemic and social distancing recommendations. The EO authorizes agencies "to hold public meetings via teleconferencing and to make public meetings accessible telephonically or otherwise electronically to all members of the public seeking to observe and to address the local legislative body or state body." (EO N-29-20, Paragraph 3).

The public workshop included a verbal presentation and PowerPoint presentation. Spanish language translation of the presentation was available to participants by closed captioning and via a call-in phone number. Workshop materials, including instructions for participating and PowerPoint presentation slides, are included in this section of the Response to Comments chapter, below. A recording of the Public Workshop is available on the Kern County Planning and Natural Resources website at

https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/OilGas_SREIR_111020Workshop_Video.mp4.

During the public workshop, participants were able to submit comments and questions in writing through the Microsoft Live Event chat feature. Those comments and questions are provided below, with detailed responses.

Public Workshop (November 2020) – Anonymous 1

Comment: Could you provide a Spanish version of the notice and key parts of the EIR? Would you provide simultaneous translation during hearings?

Response: Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment asks whether notices and key parts of the SREIR (October 2020) will be translated into Spanish, and whether live translation services will be provided at future hearings on the SREIR. Please see Response to Comment – Public Workshop (August 2020) – Escoto 1. Neither CEQA nor the CEQA Guidelines require lead agencies to translate public notices or portions of environmental documents into non-English languages. However, to foster public participation in the SREIR's preparation, Spanish translation services were provided via closed captioning and live interpretation at the public workshops on the SREIR (August 2020) and SREIR (October 2020). At these meetings, Spanish translation was made available through closed captions of the meeting's discussion, and live translation (verbal) by calling a phone number provided on the screen. In addition, Spanish-speaking residents were able to submit written comments in Spanish, which were then translated live into English. Full translation services plus verbal comment opportunities with Spanish translation will be provided at upcoming Planning Commission and Board of Supervisors meetings.

Public Workshop (November 2020) – Anonymous 2

Comment: With regard to noise, is there a restriction for construction noise , "between the hours of nine (9:00) p.m. and six (6:00) a.m. on weekdays and nine (9:00) p.m. and eight (8:00) a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of one hundred fifty (150) feet from the construction site.

Response: Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment asks whether there is a restriction on construction noise from the Project between 9:00 p.m. and 8:00 a.m. on weekdays, and 9:00 p.m. and 8:00 a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of one hundred fifty (150) feet from the construction site. The SREIR (October 2020) confirms that Chapter 8.36 (Noise Control) of the Ordinance Code of Kern County prohibits the creation of construction noise between the hours of 9:00 p.m. and 6:00 a.m. on weekdays and between the hours of 9:00 p.m. and 8:00 a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of 150 feet from the construction site, if the construction site is within 1,000 feet of an occupied residential dwelling except for emergency work or when the Development Services Director or his designated representative provides an exemption for a limited time. SREIR (October 2020), Vol. 1, at 4.12-21.

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November 10, 2020, Public Workshop Materials

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Teams Live Event Virtual Workshop Instructions



Introduction: In compliance with the Governor's Executive Order, the California Department of Public Health's guidelines on gatherings regarding COVID-19, and Kern County Local Emergency Declaration, the Kern County Planning and Natural Resources Department, as Lead Agency, is conducting a virtual workshop to facilitate public participation on the Draft Supplemental Environmental Impact Report (October 2020) for Revisions to Title 19 - Kern County Zoning Ordinance (2020-A), for Oil and Gas Local Permitting.

If you are having trouble participating in the Microsoft Live Event, please email Julie Williams at williamsj@kerncounty.com

Meeting Date and Time: Tuesday November 10, 2020 at 1:30 pm PST

Link to join: <https://tinyurl.com/yxce278t>

Spanish Language Translation: Spanish language translation services will be provided in two ways.

Microsoft Live Events Closed Caption – Closed Captions are available in Spanish by clicking on the  at the bottom right of the Presentation Screen. To select Spanish language closed captioning click on the gear icon located next to the closed captioning icon as shown . The County of Kern cannot ensure the accuracy of translation through Microsoft's Live Event closed captioning service.

Live Interpretation via Conference Call – To listen to a Live Interpreter call (408) 650-3123, Access Code: 909-829-285. Attendees may need access to 2 devices to watch the Live Event and listen to the Live Interpretation. Live Interpretation will only be available for Staff's Presentation, no verbal comments will be received during the event, therefore the Live Interpreter will not have the ability to translate questions or comments from Attendees.

Participating in the Virtual Scoping Meeting

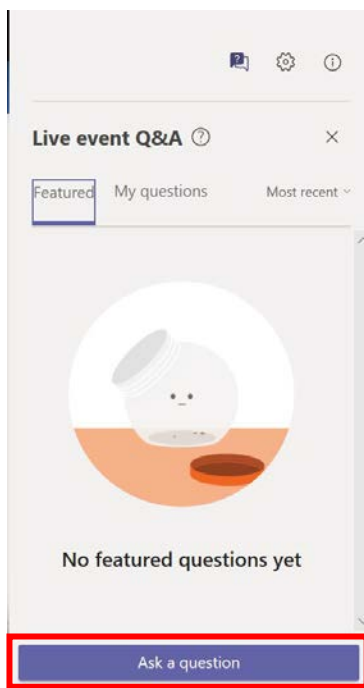
Participating: To join the Virtual Scoping Meeting paste the URL above into your web browser address bar. The URL will direct you to a Microsoft Teams Home Page that will give you the following 3 options: Download the Teams App; Sign-In using your Microsoft Log-In; Join Anonymously. Choose any of these options to join the meeting.

Please note the following:

- The time needed to download the Teams App may vary depending on a number of factors including your internet or data connection speed and the device memory capacity.
- If you have the Teams App already downloaded on your device the meeting will automatically open in your Teams App.
- If joining the meeting from a mobile device, Safari is not a supported browser. We recommend you use an internet connected computer for the best experience.
- For more information about supported browsers, device requirements and more, please visit the Microsoft Office article at the following link: <https://support.microsoft.com/en-us/office/attend-a-live-event-in-teams-a1c7b989-ebb1-4479-b750-c86c9bc98d84>



Commenting: Commenting on the Draft Supplemental Recirculated Environmental Impact Report (October 2020) can be accomplished by providing written comments to Cindi Hoover, Lead Planner, at hooverc@kerncounty.com or by mail at Kern County Planning and Natural Resources Department - 2700 "M" Street, Suite 100, Bakersfield, CA. 93301.

During the virtual Workshop, questions can be submitted via the Q&A tab (shown below) on the "Right Pane" of the Presentation Screen. No verbal comments will be accepted during the virtual Workshop.



FAQs

Q: I don't see the "Ask a Question" Button on the Presentation Screen, how do I ask a question?

A: The "Right Pane" where the Q&A panel is located may not be available in full screen viewing mode. To change from full screen viewing mode press either the Esc key or the minimize arrows  at the bottom right corner. Next click on the Q&A icon  at the top of the "Right Pane". The Q&A Panel should now open.

Q: Is there a limit to how long my question can be using the Q&A Panel?

A: Yes, a maximum of 2,400 characters per question are allowed by Microsoft.

Q: Are questions and comments anonymous?

A: Questions may be submitted anonymously or you may provide your name to show with the question. For more information on using the Q&A tool please visit the Microsoft Teams Support website.

Q: I keep getting a prompt to download the Microsoft Teams App, do I need to download the App?

A: If you are using a supported web browser such as Chrome, Firefox, or Edge you do not need to download the Microsoft Teams App. Please see the Microsoft Live Events support article at the link above for information about supported browsers, and device requirements.

Q: If I already have the Microsoft Teams App downloaded on my device, will the virtual Scoping Meeting Live Event open in my app?

A: Yes, if you have the app the event will open in your Teams App. Be sure you are using the Q&A panel in the “Right Pane” to ask questions or submit your name for the record and not the Teams Chat feature on the left of the screen.

Q: How can I provide verbal comments for the record?

A: Verbal comments on the project can only be accepted during the Planning Commission and Board of Supervisors hearings. If you wish to provide comments on the Draft Supplemental Recirculated EIR (October 2020) during the document comment period you may submit those in writing to Cindi Hoover, Lead Planner, at hooverc@kerncounty.com or by mail to Kern County Planning & Natural Resources Department - 2700 “M” Street, Suite 100, Bakersfield, CA 93301.

**Kern County Draft Supplemental Recirculated
(August and October 2020)
Environmental Impact Report
for Revisions to Title 19- Kern County Zoning Ordinance (2020-A)
Focused on Oil and Gas Local Permitting**



WORKSHOP

STARTS AT 1:30

INSTRUCTIONS : KERNPLANNING.COM

NOVEMBER 10, 2020

**Kern County Draft Supplemental Recirculated
(August and October 2020)
Environmental Impact Report
for Revisions to Title 19- Kern County Zoning Ordinance (2020-A)
Focused on Oil and Gas Local Permitting**



WORKSHOP
Lorelei H. Oviatt, AICP
Director

Kern County Planning and Natural Resources Department

NOVEMBER 10, 2020



Participation in this meeting


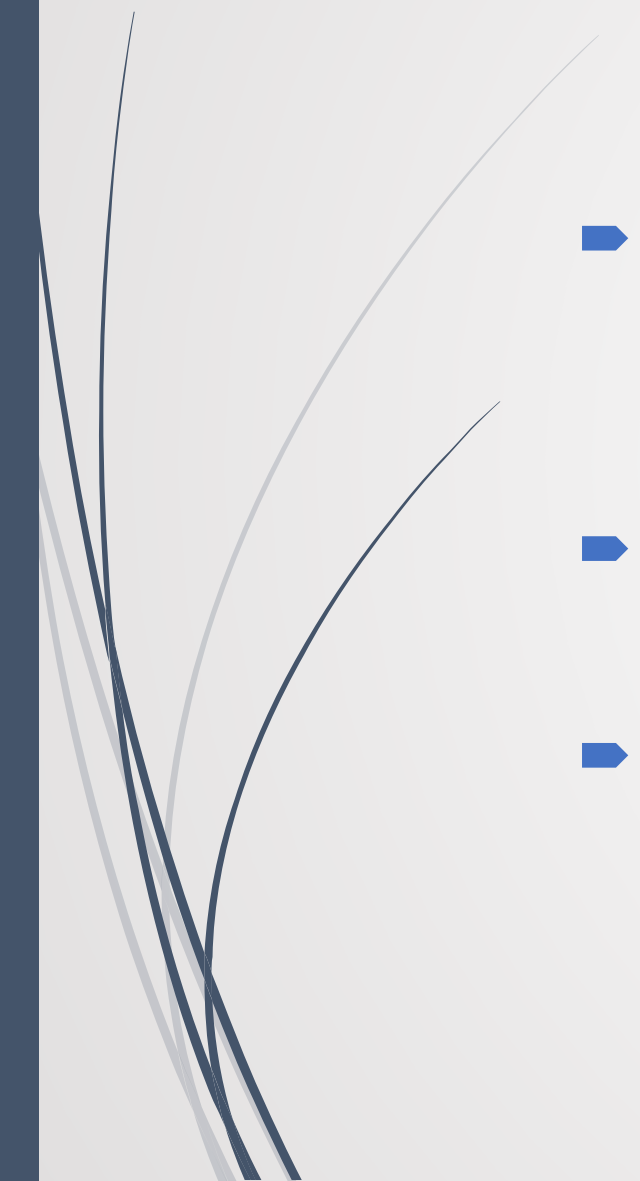
- ▶ The Q & A Button allows you to enter your name with questions.
- ▶ Verbal comments can not be accommodated
- ▶ Spanish translation is available


Closed Caption – press CC at the bottom right corner of the screen and use the Gear icon next to the CC icon to change the language setting.

Spanish Translation (verbal) can be accessed by calling
(408) 650-3123 Access Code: 909-829-285



Purpose of the Meeting

- 
- 
- **Present the Project and
Draft Supplemental Recirculated EIR**
 - **Review the Structure of the document**
 - **Present the public process and how to comment**

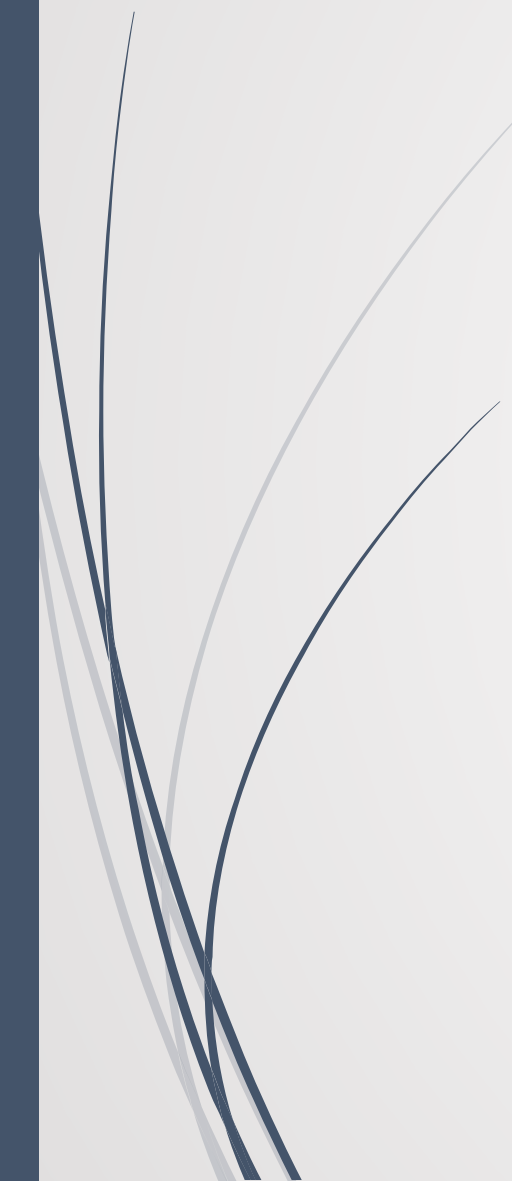


California Environmental Quality Act CEQA

- TO INFORM Decision makers about significant environmental effects
- TO IDENTIFY ways environmental damage can be avoided
- TO PREVENT avoidable environmental damage
- TO DISCLOSE to the public why a project is approved even if it leads to environmental damage



Project Summary

- Revisions to Title 19-Kern County Zoning Ordinance (2020-A) Focused on Oil and Gas Local Permitting
 - 2015 Ordinance and Kern County Oil and Gas Permitting Ended March 25, 2020.
 - Current ordinance has no required local permit, has some development standards and required setback of 150 feet from residences and 300 feet from schools.
 - Environmental review directed by court to address 5 subject areas and reconsider adoption of the Zoning Ordinance by Planning Commission and Board of Supervisors.
- 

SREIR CONTENT

- New analysis and complete 2015 FEIR and 2018 SEIR
- Circulated August 2020 for 45 days
- Revised and circulated October 30 to December 14, 2020

- Resource Sections on Topic Areas
 1. Mitigation for loss of Agricultural Land
 - 4.2 – Agricultural Resources
 2. PM 2.5 and multiwell Health Risk Assessment
 - 4.3 – Air
 3. Water – Sustainable Groundwater Management Act and supply
 - 4.9 – Hydrology and Water Quality
 - 4.17 – Utilities and Service Systems
 4. Noise – impacts on Sensitive Receptors
 - 4.12 – Noise

Structure

- Volume 1 – New Analysis
- *Changes shown in Italics and underline/strikeout*
 - Chapter 1 and 2 - Executive Summary and Introduction
 - Chapter 3 - Project Description (includes Draft Zoning Ordinance)
 - Chapter 4 - Analysis of 5 resource topic areas with numbering that corresponds to sections of 2015 FEIR
 - Review and clarifications of all other mitigation measures (Section 4.18)
 - Chapter 5 - Consequences of Project Implementation
 - Chapter 6 - Alternatives
 - Chapter 7 - Response to Comments – Released after review period
 - Chapter 8 - Organizations and People consulted
 - Chapter 9 - List of Preparers
 - Chapter 10 - Bibliography
 - Chapter 11 - Acronyms and Abbreviations
- Volume 2 – SREIR Appendices

Structure Summary

- ▶ Volume 1 and 2 – 2020 Supplemental analysis
- ▶ *Changes shown in Italics and underline/~~strikeout~~*
- ▶ Volume 3 to Volume 8
2015 Final EIR and Appendices and 2018 Final Supplemental EIR

Online at <https://kernplanning.com/SREIR2020-oil-gas-zoning-revisions/>

Over-view of Amended Mitigation

Chapter 4.2 – Agricultural Resources

- ✓ For Oil and Gas Conformity Reviews that are 1) on land designated Prime, Farmland of Statewide Importance, or Unique Farmland; and 2) that have been actively farmed five years or more out of the last 10 years; and 3) have a water allocation sufficient for farming from any source
- ✓ Limit of individual well disturbance

Subareas	Acres
Western	2.0
Central	3.0
Eastern	1.2

Over-view of Amended Mitigation

Chapter 4.2 – Agricultural Resources

For Oil and Gas Conformity Reviews that are 1) on land designated Prime, Farmland of Statewide Importance, or Unique Farmland; and 2) that have been actively farmed five years or more out of the last 10 years; and 3) have a water allocation sufficient for farming from any source:

- ✓ Legacy equipment on same parcel as new well must be removed and land remediated

Over-view of Amended Mitigation

Chapter 4.3 – Air

- ✓ Amended requirements for worker education on Valley Fever
- ✓ Requirements to comply for all pandemic health laws
- ✓ \$25 per well for new Oil and Gas Conformity Review for Public Health education on Valley Fever

Over-view of Amended Mitigation

Chapter 4.12 – Noise

- ✓ Construction and Operational requirements if within a trigger mitigation distance of a sensitive receptor
- ✓ A sensitive receptor is defined as a single or multi-family dwelling unit, place of public assembly (a legally permitted place where 100 or more people gather together in a building or structure for the purpose of amusement, entertainment or retail sales), church, institution, school, or hospital.

Over-view of Amended Mitigation

Chapter 4.12 – Noise

- ✓ Construction and Operational requirements standard is a not to exceed of 5 Db over the ambient level at the property line of the identified sensitive receptor.

Over-view of Amended Mitigation

Chapter 4.12 – Noise

✓ Construction

- Show all sensitive receptors within 4000 feet of site.
- For Large Scale Exploratory well – all sensitive receptors within 8000 feet of site.

Over-view of Amended Mitigation

Chapter 4.12 – Noise

- ✓ Construction
 - ▶ Trigger Distances for mitigation shown on chart in MM 4.12 – 1 with 3,900 feet being the distance for drilling (well advancement)
 - ▶ If the well can not meet that distance then further construction noise attenuation and monitoring is required.

Over-view of Amended Mitigation

Chapter 4.12 – Noise

- ✓ Operation (MM 4.12-2)
- Trigger Distances for mitigation are between 210 and 650 feet from sensitive receptor.
- If the well can not meet that distance then further permanent operational noise attenuation is required.
- Electric well operation would allow for the 210 setback. Otherwise a block wall is required.

Over-view of Amended Mitigation

Chapter 4.12 – Noise

- ✓ Operation (MM 4.12-2)
- ➡ Mandatory setbacks
- ➡ 210 feet - New oil and gas wells from the closest sensitive receptor for the following uses: single or multi-family dwelling unit, place of public assembly (a legally permitted place where 100 or more people gather together in a building, or structure, for the purpose of amusement, entertainment, or retail sales), church, institution or hospital.
- ➡ 300 feet – New oil and gas wells shall be a minimum of three hundred (300) feet of the legal parcel property line that contains a permitted public or private school. A single family or multi-family dwelling unit that may have home schooling activities shall use the single family dwelling unit distance.

Over-view of Amended Mitigation

Chapter 4.17 – Utility and Public Systems

MM 4.17 – 3

- ✓ Required information on each permit of groundwater or reclaimed water used.
- ✓ Metered water well only for groundwater
- ✓ Report to be complied annually and posted online and provided to water authorities

Over-view of Amended Mitigation

Chapter 4.17 – Utility and Public Systems

MM 4.17 – 5

- ✓ Establishment of Disadvantaged Community Drinking Water Grant Fund administered by Kern County Public Health
- ✓ New Oil and Gas Conformity Reviews - \$250 per individual well
- ✓ Minor Activity Reviews - \$50 per individual well
- ✓ Available only for water projects in disadvantaged communities in valley portion of Kern County
- ✓ Anticipated to generate \$460,000 per year



Opportunities to Participate

- ▶ Draft SREIR – 45 days
Review period ends – December 14, 2020
- ▶ Response to Comments released - Prior to Hearing
- ▶ Planning Commission – Public Hearing – February 11, 2021
Staff report released – February 5, 2021
- ▶ Board of Supervisors – Public Hearing - Tentative – March, 2021
- ▶ Comments can be made throughout the entire process up until the Board of Supervisors votes at the public hearing.
- ▶ Request to be placed on mailing list

Cindi Hoover, Lead Planner at hooverc@kerncounty.com



How to Make a Comment

- ▶ Written comments can be submitted to the Staff Team Lead Planner at hooverc@kerncounty.com
- ▶ Submitted by US. Mail or delivery to Kern County Planning and Natural Resources Department 2700 M Street, Suite 100, Bakersfield, CA 93301
- ▶ Documents can be viewed online at <https://kernplanning.com/> or by appointment.



Further Information

- ▶ Kern County Planning and Natural Resources
<https://kernplanning.com/>
- ▶ Staff Team Lead Planner for Comments
Cindi Hoover
Email – hoooverc@kerncounty.com
Phone – (661) 862-8629

7.3.4 State Agencies

14 California Air Resources Board

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Gavin Newsom, Governor
Jared Blumenfeld, CalEPA Secretary
Mary D. Nichols, Chair

December 14, 2020

Cindi Hoover, Lead Planner
Kern County Planning and
Natural Resources Department
2700 M Street, Suite 100
Bakersfield, California 93301

Dear Ms. Hoover:

This letter provides comments from the California Air Resources Board (CARB) on the Draft Supplemental Recirculated Environmental Impact Report (SREIR), October 2020, for revisions to title 19 – Kern County zoning ordinance (2020-A) focused on oil and gas local permitting. The attached document outlines our specific comments. A summary of our comments are below.

1. Health risks may be underestimated. Assumptions in the Health Risk Assessment conducted in 2015 (2015 Risk Assessment) should be clearly stated as these assumptions drive the health risk values. The 2015 Risk Assessment as published may severely underestimate potential health risks to residents and communities near drilling and production activities. See comments No. 1 and 2 in the attached document for additional details.
2. Air quality impacts from sumps should be considered. The SEIR suggests use of sumps for water “gradually being eliminated.” However, many sumps in the Central Valley remain active. These sumps may be a significant source of VOCs based on a recent CARB study on air emissions from produced water. See comment No. 3 in the attached document for more details.
3. Additional justification and analysis is required regarding setback distances and the 2,500 ft. setback alternative. More data and analysis is needed to support the claim that Alternative 7 would result in greater air quality, greenhouse gas, and noise impacts. See comment No. 4-7 in the attached document for more details.

0014-1

0014-2

0014-3

0014-4

Ms. Cindi Hoover
December 14, 2020
Page 2

0014-5

If you have any questions, please contact me at (916) 445-1104 or via email at Carolyn.Lozo@arb.ca.gov, or Kathleen Kozawa, Manager, Program Assessment Section, at (916) 327-5599 or via email at Kathleen.Kozawa.arb.ca.gov.

Sincerely,



Carolyn Lozo
Chief
Oil and Gas and Greenhouse Gas Mitigation Branch

Enclosure:
SREIR - 2020 Comments_12.14.2020_Clean Copy

cc: Kathleen Kozawa,
Manager
Program Assessment Section
Industrial Strategies Division

Staff Comments

Draft Supplemental Recirculated Environmental Impact Report (DSREIR) Amendments to the Title 19 – Kern Oil and Gas Local Permitting (2020-A) December 14, 2020

Sections/Pages Reviewed:

1. Appendix B: “Health Risk Assessments”, Cumulative Health Risk Assessment October 2015
2. 4.3-143 to 4.3-166: *Impact 4.3-3 Expose Sensitive Receptors to Substantial Pollutant Concentrations* (in Section 4.3.4 Impacts and Mitigation Measures)
3. 4.9-97 to 4.9-122: *Groundwater Quality and Existing Oil and Gas Operations* (in Section 4.9.2 Environmental Setting, reviewed for implications regarding air emissions from produced water)
4. Chapter 6 Alternatives, *Alternative 7 – 2,500-Foot Setback Alternative*

No.	Comment	Location
1.	<p>DSREIR Appendix B: “Health Risk Assessments”, Cumulative Health Risk Assessment October 2015</p> <ul style="list-style-type: none"> • Drilling and rework happens over a short period of time. Averaging the emissions over a year will grossly under estimate any acute risk. • Drilling sump VOC emissions were assumed light crude when according to SJVAPCD most sumps are heavy crude. The toxic components of VOC emissions may vary significantly between light and heavy crude, and therefore use of emissions for light crude misrepresents actual emissions. • Inadequate information to replicate drilling mud sump compound annual emissions. All assumptions, emissions, etc. need to be clearly stated and reproducible • When assessing total cumulative risk all processes and compounds (not just DPM) emitted should be modeled for combined risk from all emissions contemporaneously being released from oil and gas operations, especially over a lifetime; not doing so underestimates risk. <ul style="list-style-type: none"> ○ Processes should include: well stimulation/clean out, production/processing, storage • Based on oil and gas well drilling trends in Kern County, risks are underestimated, as there is the potential to drill 	<p>Page 169 Section 2.0</p>

	<p>a new well every day of the year. In 2019¹ over 2000 Notices of Intent to Drill were submitted to Kern County. HRA should look at the lifetime air quality impacts of a new well in addition to the baseline air quality on the oil field. Oil wells can continue to emit pollutants throughout their productive lifespan. Taking this into account may have a significant impact on the HRA.</p>	
2.	<p>DSREIR: Operational Equipment Emissions</p> <p>Compressors powered by an internal combustion engine are not included as part of the natural gas extraction process, underestimating cancer risks from operational emissions from natural gas processing equipment. Some of the associated natural gas produced by small oil & gas producers is transferred via pipe to a gas plant or facility for additional processing or disposal. Due to the low pressure in the formation, compressors that serve as pressure boosters are sometimes used to move this gas via pipeline to a different facility from which it was produced. This practice is commonly seen with small oil & gas operators. It is unclear how many of these compressors are used by small operators in the San Joaquin Valley. In order to accurately reflect the operational emissions from the proposed project and associated health impacts, the County should reevaluate the sources of operational emissions to include compressors powered by an internal combustion engine.</p>	Section 4.3, Page 4.3-146
3.	<p>DSREIR: Groundwater Quality and Existing Oil and Gas Operations</p> <p>While the 2004 Tulare Basin Plan indicates that the use of sumps for disposal is “gradually being eliminated” due to produced water being discharged to Class II injection wells, a January 31, 2019 report from the State Water Resources Control Board indicates that there are still 561 active ponds/sumps in the Central Valley. 501 of which have active permits. This is a large number of sumps and impacts of these sumps/ponds on groundwater and also on air quality should be considered, as annually millions of barrels of produced water will likely be discharged to these facilities for the foreseeable future.</p>	Section 4.9.2 (Starting Page 105)

¹ CalGEM, WellSTAR. <https://wellstar-public.conservation.ca.gov/General/Account/PublicEntry?returnUrl=/>

	Oil and gas produced water can contain high concentrations of VOCs that vent to the atmosphere when stored/disposed of in sumps/ponds ² . BTEX (a subgroup of VOCs) emissions from produced water pond facilities in the San Joaquin Valley were estimated to account for 1-2% of emissions reported in the California Toxics Inventory ¹ . Many VOCs are considered Toxic Air Contaminants (TACs) by the California Air Resources Board which are defined as “air pollutants that may cause or contribute to an increase in mortality or increase in serious illness, or which may pose a present or potential hazard to human health.” Exposure to VOCs can result in health impacts including respiratory irritation and damage to liver, kidney and central nervous systems. Also, in the atmosphere, VOCs react to form ozone, further impacting the respiratory system by reducing lung function and worsening conditions such as bronchitis and asthma.	
4.	DSREIR: Chapter 6 Alternatives The report states that the 210-foot setback between oil and gas wells and sensitive receptors is science based; however, justification is not provided for the 210-foot setback or the suggested increase in the school property setback to 300 feet from oil and gas wells. This justification was also not included in Sections 4.3 and 4.12. Furthermore, it is unclear from Section 4.3 how 210 and 300 feet were determined to be safe distances from an air quality perspective. Without this analytical detail describing the evidence-based methodology used to reach these setback conclusions, the DSREIR fails to adequately inform the public and decision makers that these setbacks properly address adverse environmental impacts from oil and gas wells in Kern County.	Section 6.7.7, Page 6-35
5.	DSREIR: Chapter 6 Alternatives More analysis and data is needed to justify the claim that operators will drill horizontally as opposed to not drilling at all if the ordinance contained a 2,500-foot setback from new oil and gas wells. There may be some cases where horizontal drilling is used, but there may also be other cases where horizontal drilling is not economical, so operators will choose not to drill as a result of the setback. Furthermore, while there may be more emissions	Section 6.7.7 (<i>Comparative Impacts of Alternative 7</i>), Page 6-37

² California Air Resources Board. *Measurement of Produced Water Air Emissions from Crude Oil and Natural Gas Operations*. May 2020.

	<p>associated with longer drilling times, during both drilling and production the emissions would be a greater distance from the communities, potentially resulting in reduced exposures of sensitive receptors to higher concentrations of pollutants. More air quality/public health impact analysis is needed to distinguish between the longer drilling times further away from sensitive receptors and shorter drilling times closer to sensitive receptors to adequately support the claims made in Alternative 7 that it is less environmentally protective than the proposed project.</p> <p>The discussion of noise impacts fails to mention that even with mitigation, temporary noise impacts are significant and unavoidable. Temporary impacts are associated with drilling, workovers, and well stimulation; these seem like important activities to factor into a safe setback distance. Also, Table 4.12-15 appears to show that 650 feet should be the minimum distance from an operational noise standpoint, so it is confusing why 210 feet was claimed to be sufficient, even when only factoring in operational noise.</p>	Page 6-38
6.	<p>DSREIR: Chapter 6 Alternatives</p> <p>The statement that the alternative will result in reduced economic development relative to the Project seems to contradict what was stated earlier about horizontal well drilling. It seems there are two potential arguments against the alternative: 1) fewer wells will be drilled and economic development will be impacted, or 2) wells will be drilled horizontally so there will be increased drilling emissions due to the longer drilling times. Claiming both reduced economic development and increased emissions, without showing any data or detailed analysis, is contradictory and lacks support from substantial evidence in the record.</p> <p>The discussion of land use regulations mentions that “unreasonable restrictions on oil operations are not proper land use regulations”. However, this assumes that 2,500 feet is unreasonable. If it is shown to be a necessary distance to protect public health, it seems like it would not be an “unreasonable restriction” especially considering the County’s conclusions that oil and gas operators would drill horizontally to access reserves if the County imposed a 2,500-foot setback from new oil and gas wells. While there may be added cost to a property owner to</p>	<p>Section 6.7.7 (<i>Alternative 7’s Relationship to the Project Objectives</i>), Page 6-42</p> <p>Page 6-43</p> <p>Page 6-43</p>

0014-11
Cont'd

0014-12

0014-13

0014-14

	<p>horizontally drill, the Fifth Amendment of the United States Constitution does not guarantee the highest and best land use devoid of reasonable land use restrictions to protect public health and welfare; these additional costs associated with a larger setback to protect public health and welfare from adverse air quality impacts very likely would not constitute a regulatory takings (see <i>Concrete Pipe & Products of California, Inc. v. Construction Laborers Pension Trust</i>, (1993) 508 U.S. 602, 644-45).</p> <p>The report mentions the potential risk of setbacks subjecting the County to takings liability. According to a UC Berkeley report, there are ways to craft regulations to avoid constitutional takings challenges.³ Further, as noted above, there are ways that a property owner may still access oil and gas reserves while also protecting public health and welfare by drilling further away from sensitive receptors.</p>	
7.	<p>DSREIR: Chapter 6 Alternatives</p> <p>As elaborated above, more data and analysis is needed to support the claim that Alternative 7 would result in greater air quality, greenhouse gas, and noise impacts. See comments on pages 6-37 and 6-42 above for more details.</p>	<p>Section 6.9 Page 6-48</p>

³ UC Berkeley Center for Law, Energy, and the Environment, *Law and Policy Options to Facilitate a Phase-Out of Fossil Fuel Production in California*, April 2020.

0014-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. Please see Responses to Comments 0014-2 through 0014-15.

0014-2

The comment states that health risks from the Project may be underestimated and that the 2015 Health Risk Assessment (HRA) may underestimate potential health risk to residents and communities near drilling and production activities.

Three separate HRAs were performed for the Project, two single-well HRAs (March 2015 and September 2015) and a multi-well HRA. It is unclear whether the comment is addressing the assumptions for the single-well HRAs or for the multi-well HRA. Only the multi-well HRA was challenged, and thus only the multi-well HRA has been addressed in the SREIR. Please see Global Response (GR) 1 – Beyond the Scope of the SREIR. For an explanation of the underlying assumptions and modeling utilized in all three HRAs, please see GR-6 – Health Risk Assessments. The two single-well HRAs found that, with implementation of the mitigation trigger distances in MM 4.3-5, the risk level would be below the San Joaquin Valley Air Pollution Control District's (SJVAPCD's) then-applicable threshold of 10 in one million. The multi-well HRA found that cancer risk would be 9.3 in one million, significantly below the SJVAPCD's current threshold of 20 in one million. We assume that the comment relates to the multi-well HRA. The comment does not provide evidence that the multi-well HRA underestimated risk, but states generally that it may do so. For responses to the comment's specific claims about potential underestimated risk, please see Responses to Comments 0014-7 and 0014-8.

0014-3

Please see GR-1 – Beyond the Scope of the SREIR. The scope of the Court of Appeal's decision did not include the analysis or mitigation for volatile organic compound (VOC) emissions or other air quality impacts beyond those related to emissions of particulate matter up to 2.5 microns in diameter (PM_{2.5}), MM 4.3-8, and recirculation of the multi-well HRA. CEQA does not require the SREIR to modify the other portions of the air quality impact analysis. Even so, the SREIR (October 2020) addresses produced water in multiple places. "Sumps" and "pits" refer to an excavated depression in the ground that collects crude oil, produced water, or solids, such as drilling muds or cuttings, in oil producing fields. "Drilling sumps" and "drilling pits" refer to the collection of drilling fluids and cuttings produced during drilling operations. "Operation sumps" refer to sumps that are utilized to store fluids and solids that are produced during the life of the operational well, as well as potential workover activities. Sumps and pits are co-located with wellhead sites. "Ponds" are typically centralized facilities that collect fluids from multiple operators at a location that is not related to the location of drilling operations. "Evaporation ponds" and "percolation ponds" refer to a type of storage in which produced water is allowed to evaporate into the air and/or percolate into the soil.

The HRAs took into consideration the use of sumps and pits in their analyses because those features are co-located with wellheads and drilling sites. All three HRAs completed for the Project included potential fugitive toxic emissions from both a drilling mud sump during drilling operations, and a 30- by 30-foot ground level sump that was assumed to exist as part of ongoing oil and gas processing operations. See SREIR (October 2020), Vol. 1, at 4.3-146–152. Emissions from the sump were conservatively assumed to have a continuous VOC release rate of 0.01 pounds per hour. These VOCs were further assumed to contain potentially toxic compounds typically found in crude oil. The compounds modeled for the sump were ethylbenzene, benzene, xylene, toluene, cyclohexane, and n-hexane. As to general air quality impacts, VOC emissions from sumps were not included directly; however, air emissions are either accounted for indirectly or are negligible. Emissions from sumps would be expected to be captured by the 10 percent allowance included in the emissions estimate for permit exempt equipment. See SREIR (October 2020), Vol. 1, at 4.3-111–112. MM 4.1-3 requires that all surface sumps and ponds be permitted only to the extent authorized by the Central Valley Regional Water Quality Control Board (CVRWQCB) (via waiver, Waste Discharge Requirements, or other form of authorized written documentation). The surface sumps must comply with all applicable legal requirements and mitigation measures for sumps serving as storage, percolation, or evaporation ponds for produced water. MM 4.3-8 also requires that Project-related emissions of reactive organic gases (another name for VOCs) are fully offset. See SREIR (October 2020), Vol. 1, at 4.3-164–165. Thus, the air quality analysis included VOC emissions from these sources and mitigated any impacts from these emissions. Existing sumps are considered part of the baseline for CEQA purposes, and thus their emissions are not required to be considered in the air quality analysis in the SREIR. Please also see Response to Comment 0014-9.

0014-4

Please see Responses to Comments 0014-10 through 0014-15.

0014-5

This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0014-6

The comment references the sections and pages of the SREIR reviewed by the California Air Resources Board (CARB). This comment is noted and will be considered by County decisionmakers.

0014-7

The comment states that well drilling and rework happen over a short period of time and thus that averaging emissions over a year will underestimate acute risk.

The comment shows a misunderstanding of the health risks posed by the Project. Project activities can cause an increase in both cancer risk and acute risk. The overwhelming risk posed by well drilling is an increase in lifetime cancer risk due to exposure to diesel particulate matter (DPM), a carcinogen. Over 99 percent of the risk from well drilling activities is derived from DPM, which does not pose an acute hazard. Any acutely hazardous chemicals emitted during well drilling activities are minimal and thus are completely dwarfed, as a health risk matter, by the effects of DPM on cancer risk. For this reason, well drilling does not pose an acute risk to sensitive receptors. This is why the single-well HRAs showed very low values for the acute risk posed from well drilling. The June 2015 HRA hazard index results were 0.0098, 0.0039, 0.0018, and 0.0090, well below the regulatory standard hazard index of 1.0. See SREIR (October 2020), Vol. 1, Table 4.3-36, at 4.3-150. Because acute risk is measured on a 1-hour basis, whereas DPM is a pollutant that is hazardous based on a lifetime of exposure, increased short-term exposure to DPM does not create an acute risk.

Since the risk posed from well drilling is the cancer risk from DPM exposure, the only risk that increases from the scenario where one well is drilled near a sensitive receptor at one time (single-well) to the scenario where 48 wells are drilled over time near a sensitive receptor (multi-well) is lifetime cancer risk. Any acute risk posed by the multi-well scenario would be similar to that posed by the single-well scenario because this risk is identical in both scenarios. The acute risk is merely the risk from 1-hour exposure to a well being drilled. The hazard index results from the single-well HRA, or the acute risk, would only be different in the multi-well scenario if more than one well was drilled simultaneously near a sensitive receptor because acute risk is measured on a 1-hour basis. That situation is highly unlikely given the short time it takes to drill a well (approximately 43 days for a 13,000-foot well and approximately a week for the more common shallower wells) and the number of drill rigs available in Kern County historically (4 to 12 rigs). See SREIR (October 2020), Vol. 1, at 4.3-152; SREIR (October 2020), Vol. 2, Appendix B-1 at 3. Based on these facts, it is highly unlikely that two wells would be drilled simultaneously near one sensitive receptor. Even in that very unlikely instance, acute risk would conservatively be equal to the risk of two wells being drilled at the same time ($0.0098 + 0.0098 = 0.0196$), a value still considerably lower than the hazard index of 1.0. For this reason, the multi-well HRA did not model acute risk separately, as that risk would be very similar to, if not the same as, the risk modeled in the single-well HRA.

The comment also states that annualizing emissions may understate acute risk. This is incorrect because, as explained above, the risk from well drilling is overwhelmingly from DPM, whose risk is derived from lifetime exposure. Thus, annualizing DPM emissions and spreading them out over a lifetime, rather than condensing them into a shorter timeframe, does not affect their impact on an individual, as DPM does not pose an acute risk. What matters for DPM exposure is the increased risk of cancer due to lifetime exposure. For this reason, the multi-well HRA annualized emissions by determining the total DPM concentrations from all 48 wells assumed in the multi-well scenario, and then applied this to a sensitive receptor over a 70-year lifetime (the metric used in all HRAs). This does not understate risk as the key metric for health risk from well drilling is lifetime DPM exposure. In addition, annualizing emissions may be overly conservative as it assumes that events like well rework, which is part of the multi-well HRA scenario, would occur equally during the day and at night even though well rework is most likely to occur during the day. This matters because during the day the atmosphere is less stable, meaning there are higher wind speeds and the possibility of more dispersion of emissions. This results in lowered modeled concentrations of pollutants. By contrast, at night meteorology is typically characterized by low wind speeds and stable atmospheric conditions, which result in high modeled concentrations. By spreading emissions equally throughout a 24-hour period, vast amounts of emissions that would very likely occur during the day, and be dispersed, are modeled as if they occur at night, when they would sit and result in higher concentrations. Thus, annualizing emissions is conservative and could overstate risk.

The comment next states that drilling sump VOC emissions were assumed to be light crude, when the SJVAPCD notes that most sumps are heavy crude and the toxic components of each may vary. Light crude was assumed for the drilling sump because it has a higher evaporation rate than heavy crude (EPA 2017). It also has a higher percentage of light hydrocarbons (Sunshine 2020). Thus, when crude sits in a sump there is higher volatilization of VOCs in light crude than in heavy crude and thus more emissions. Assuming that crude in the sump is light crude therefore represents a conservative and worst-case assumption. The HRA scenarios included potential drilling mud emissions and sump emissions from a 30- by 30-foot sump. Both the drilling mud and the sump were assumed to emit 1,2,4 trimethylbenzene; benzene, toluene, ethylbenzene, and xylene (BTEX); cyclohexane; n-hexane; and hydrogen sulfide. Please see GR-6 – Health Risk Assessments; See SREIR (October 2020), Vol. 1, Table 4.3-38, at 4.3-154, showing annualized emissions from these pollutants. These compounds would be expected to be emitted from both light and heavy crude. Emission factors were obtained from the SJVAPCD report entitled, Oilfield Equipment Light Crude Oil Fugitives. See SREIR October (2020), Vol. 2, Appendix B-1. Hydrogen sulfide was based on an assumption of 1,000 particles per million. Appendix A in the June 2015 HRA lists Contaminants by Device with pounds per year from each device and shows total DPM from all well drilling scenarios. Drilling mud sump emissions of 1, 2, 4 trimethylbenzene, benzene, cyclohexane, ethylbenzene, n-hexane, toluene, xylenes, and hydrogen sulfide accounted for less than 1 percent of the total risk value from the scenarios for which HRAs were performed. This is due to the fact that DPM emissions are significantly higher than the sump emissions and DPM has a higher potency factor than the other pollutants being emitted from the sump. For this reason, even doubling the VOC emissions assumed to come from sumps as modeled in the HRA would not materially alter the HRA's conclusions.

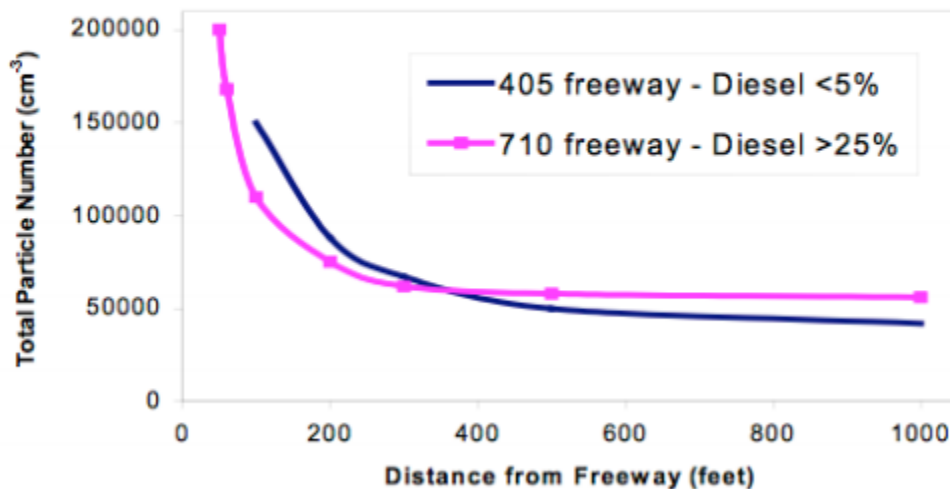
The comment states that when assessing total cumulative risk, all processes and compounds emitted should be modeled, including well stimulation/clean out, production/processing, and storage to assess emissions being released over the lifetime of a well. All three HRAs included significant production equipment as part of a conservative assessment, including thermally enhanced oil recovery, production, and processing equipment and storage tanks. See Response to Comment 0014-2 and GR-6. The highest calculated acute risk associated with all operations at a theoretical oil and gas production facility based on the September 2015 single-well HRA under SJVAPCD directive was 0.23, as compared to the regulatory significance standard of 1.0. The multi-well HRA assessed well drilling and completion and well rework, but no oil or gas processing plant was assumed to be located at the well sites. This is because there would not be room for a processing plant to be co-located with the wells in the multi-well HRA scenario due to the number of wells (48) that would be located in such a small area. It was assumed that in this scenario oil would be moved to a processing plant or plants via underground pipeline. Any oil or gas processing facility would also require an HRA to be completed for each piece of equipment emitting any hazardous air pollutants. Each of these HRAs would also need a chronic and acute hazard index study. The SJVAPCD would then decide (based on risk results) if the plant's equipment would be eligible for permitting. The multi-well HRA assessed all chemicals associated with well drilling and a co-located sump, including DPM, 1, 2, 4 trimethylbenzene, benzene, cyclohexane, ethylbenzene, n-hexane, toluene, xylenes, and hydrogen sulfide. See Response to Comment 0014-3.

The comment states that risks may be underestimated as there is the potential to drill a new well every day of the year. The comment bases this information on California Geologic Energy Management Division (CalGEM) data showing that over 2,000 notices of intent to drill were submitted to Kern County in 2019. The CalGEM data show that only approximately 759 of the 2,000 notices of intent to drill were for oil and gas production wells. The notice of intent gives an applicant one year from the time the permit is issued to drill, and not all wells are eventually drilled. In any event, for purposes of the HRAs the number of wells drilled proximate in time to a single sensitive receptor in Kern County is what matters, not the total number of wells that are drilled across the Project Area that are potentially not near enough to any sensitive receptor to impact them. Please see also Response to Comment 0008-27.

Baseline air quality in the Project Area is not part of the HRA analysis, neither under CARB's own HRA guidance or under SJVAPCD HRA guidance. As to the potential for oil wells to continue to emit pollutants throughout their productive lifespan, as outlined in detail in Section 4.3, Air Quality, there are more than 60 SJVAPCD regulations designed to reduce, control, permit, and track emissions from oil and gas operations in Kern County. Once an oil well is completed, specific air district and CARB regulations prohibit fugitive leaks from oil wells and well cellars. SJVAPCD Rules 4401 – Steam-Enhanced Crude Oil Production Wells, 4402 – Crude Oil Production Sumps, and 4407 – In-Situ Combustion Well Vents (among others) all require operators to ensure that VOCs are not leaking from the equipment or sumps. Other existing CARB and federal regulations will continue to reduce diesel emissions (and associated risk) in California over the life of the Project. These rules include, but are not limited to, California's Clean Diesel Fuel Regulations (17 Cal. Code Regs. § 93114), Stationary Diesel Engine Regulations (17 Cal. Code Regs. § 93115 et seq.), Portable Diesel Engine Regulation (17 Cal. Code Regs. § 93116 et seq.), and In-Use Off-Road Vehicles (13 Cal. Code Regs. § 2449). According to CARB's *Risk Management Guidance for Stationary Sources of Air Toxics*, health risks associated with ambient toxic air pollution were reduced by 77 percent between 1990 and 2015 (CARB 2015, p.8).

As to DPM emissions in general, CARB's *Air Quality And Land Use Handbook: A Community Health Perspective* shows that even 24 hour-a-day, seven-day-a-week exposure to DPM from close proximity to a freeway results in concentrations of DPM that drop off significantly at a distance of approximately 200 to 300 feet and then remain steady even at further distances (CARB 2005, p.9). Meanwhile, most wells are drilled in approximately one week, with only the deepest, and very uncommon wells taking a month or more to drill. This one week's worth of DPM emissions is then spread over a lifetime in order to determine their impact on cancer risk (See Figure 1-1).

Figure 1-1
Decrease In Concentration of Freeway Diesel PM Emissions
With Distance



0014-8

The comment states that compressors powered by an internal combustion engine are routinely used as part of the natural gas extraction process, and that those should be included in the Project's operational emission calculations.

Please see GR-1 – Beyond the Scope of the SREIR. The Court of Appeal's judgment did not mandate any changes to the air quality calculations in the SREIR, and thus no action is required to address the air quality analysis. Existing compressors would be considered part of the CEQA baseline and do not need to be considered in the analysis of potential air quality impacts from the Project. Compressors are regulated by both the U.S. Environmental Protection Agency and the SJVAPCD. See SREIR (October 2020), Vol. 1, at 4.3-50–51. The New Source Performance Standards for the oil and gas sector are intended to curb methane, VOCs, and toxic air contaminants and include controls on fugitive emissions from compressor stations, equipment leaks at natural gas processing plants, and equipment used across the source category. SJVAPCD Rule 4409 also covers compressors at natural gas production and processing facilities. However, using internal combustion engine-powered compressors to move gas is not typical in the Project Area. The fields in the Project Area have been worked over for over 100 years in many cases. Nearly all fields have infrastructure to move gas to central facilities that are electrified. Wells are operated either with closed casing vents (or no casing vents), in which case the gas is entrained in the produced fluids and is carried to the central facilities where the gas is then liberated and separated out, or with casing vents that are open, in which case the wells have a line for produced fluids and a separate line for gas that moves to the same central facility.

Operating stationary internal combustion engines requires a permit from the SJVAPCD if the engine is greater than 50 horsepower. Any compressor that would move the amount of gas described in the comment would be over 50 horsepower. It does not make sense to run temporary engines for wells. The wells will be in operation for several years, such that operators would eventually have to get a stationary engine or electrify the well. Any portable, temporary compressor is registered through CARB (and potentially through the SJVAPCD) and would be limited to 12 months onsite. The HRAs assumed use of a diesel compressor, which represents more risk than non-diesel compressors, and assumed that production equipment was sited on the same property as the well being drilled in the modeled HRA scenario. Please see GR-6 – Health Risk Assessments. Any large stationary sources would be required to obtain permits from the SJVAPCD and to conduct an HRA in accordance with their HRA guidance.

0014-9

Existing oilfield sumps are subject to CalGEM regulations, including, but not limited to, 14 Cal. Code Regs. §§ 1760, 1770, 1775, and 1776. Please see GR Water-01: Disposal into Unlined Ponds and Sumps in the 2015 FEIR. See SREIR (October 2020), Vol. 5, Chapter 7.2.1, at 7-290. These regulations include requirements for sump location, construction, and closure. Specifically, section 1770, relating to sump closure, requires that (1) all free fluids be removed from drilling sumps within 30 days after the date the drill rig is disconnected from the well, and (2) all free fluids be removed from operations sumps within 14 days after the rig removal or from completion of operations, whichever occurs first. See also 14 Cal. Code Regs. § 1776(b) (requiring sumps to be closed in accordance with Regional Water Quality Control Board and Department of Toxic Substances Control requirements).

Project Area oilfield sumps and surface ponds are also regulated by the CVRWQB under state and, where applicable, federal water quality laws and regulations. The SREIR (August 2020) contains a detailed discussion of recent regulatory actions related to drilling mud and drilling fluid discharges to land. See SREIR, Vol. 1, at 4.9-145–146. State Water resources Control Board (SWRCB) General Order 2003-0003-DWQ requires a discharger, at the end of drilling operations, to (a) remove all wastes from the sump or (b) remove all free liquid from the sump and cover residual solid and semi-solid wastes, provided that representative sampling of the sump contents after liquid removal shows residual solid wastes to be nonhazardous. The CVRWQCB has issued orders to several operators under Cal. Water Code § 13267, requiring the operators to provide information about discharges of drilling muds into sumps from January 1, 2012, to November 2013, and CVRWQCB staff have informed operators that the Regional Board may prepare a general order for the discharge of drilling mud and cuttings to drilling mud pits, which would replace coverage under SWRCB General Order No. 2003-003. See SREIR (October 2020), Vol. 1, at 4.9-145–146.

Emissions of VOCs from sumps associated with Project activities were considered in all three HRAs and accounted for in the air quality analysis by the 10 percent emission allowance for non-permitted equipment. See GR-6 – Health Risk Assessments and Responses to Comments 0014-2 and 0014-3. BTEX and other constituents were considered in the HRAs, as described in GR-6. The SREIR also provides a full discussion of the potential health impacts from VOC emissions. See SREIR (October 2020), Vol. 1, at 4.3-18. As explained in Response to Comment 0014-7, well cellars are prohibited by law from having any liquid in them. Both footnotes 1 and 2 in the comment appear to reference CARB’s May 2020 report entitled, *Measurement of Produced Water Air Emissions from Crude Oil and Natural Gas Operations*. This study states that it is possible that 1 to 2 percent of VOC emissions in the San Joaquin Valley could be from disposal of oil and gas produced water in open, unlined ponds. The study further states that additional testing and analysis is needed to confirm emission rates due to the very limited number of samples taken and the extremely wide range of results observed. Table 5.1 of the study indicates that only four samples were taken from open ponds in the San Joaquin Valley. Results varied so widely as to be not accurate or statistically relevant. As the table indicates, the range of BTEX extrapolated from the samples ranged from an equivalent of 59 pounds per year to nearly 1,000,000 pounds per year. As explained in GR-6 and Response to Comment 0014-7, 21 hazardous air pollutants were modeled as part of the HRAs, including BTEX.

0014-10

The comment states that there is no justification provided for the Ordinance’s 210-foot setback or the suggested increased 300-foot setback for schools.

Please see GR-5 – Setback and Mitigation Measure Trigger Distances and Responses to Comments 0010-14 through 0010-16 for a description of the various setbacks and mitigation trigger distances in the SREIR. Please also see Responses to Comment 0061-16.

0014-11

The comment states that more analysis and data may be needed to justify the claim that operators will drill horizontally as opposed to not drilling at all if there is a 2,500-foot setback.

The comment does not provide any evidence to substantiate this claim. Historic evidence of drilling in Kern County suggests that producers drill horizontally where feasible, even though it would add some time and cost to drilling when necessary to access potentially significant reserves. In some portions of Kern County, minerals are deposited in relatively homogeneous horizontal layers over a large area, so that the drill bore can gradually be deviated laterally to access the formation, without hitting traps or targeting small pockets of oil. In those areas, horizontal drilling is routinely utilized. See Response to Comment 0008-13 and Velasco (2020). However, the number of future wells that otherwise would feasibly be drilled horizontally, but for which horizontal drilling may prove uneconomical, is too speculative for analysis, depending on changing oil prices, technology and other factors, as well as on geological conditions. Speculation is not “substantial evidence” under CEQA. CEQA Guidelines 15384. Regarding wide fluctuations in drilling over time in response to oil prices, available technology,

available reserves, and changing regulatory requirements, see SREIR (October 2020), Vol. 1, at 2-23–24; see also SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-128–131; 136–142 (2015 FEIR GR-6: Baseline: 2012; GR-8: Future Well Projections).

The comment is correct that there would be more emissions with horizontal drilling but potentially reduced exposures to sensitive receptors. Please see Response to Comment 0014-2. However, the HRAs performed for the Project determined that risks would be below the SJVAPCD threshold of significance with implementation of MM 4.3-5. Thus, further setbacks are not required. Even in the extremely conservative multi-well HRA scenario, risks were significantly below the threshold (9.3 in one million as compared to the SJVAPCD threshold of 20 in one million). As to support for the claims made in Alternative 7 that it is less environmentally protective than the proposed Project, please see Responses to Comments 0061-17, and 0061-84 through 0061-86.

0014-12

This comment states that the discussion of noise impacts in the Alternatives chapter does not acknowledge that construction impacts remain significant and unavoidable.

The SREIR (October 2020) explains that noise impacts were significant and unavoidable because while setbacks and noise attenuation strategies can reduce the effect of Project construction and operation activities, noise sensitivities vary based on individual tolerances and, depending on individual sensitivity, any incremental increase of that ambient noise level could be considered intrusive by the homeowner, church member, or other user of the sensitive receptor. The SREIR (October 2020) updated the applicable mitigation measures to require additional mitigation. Please see Responses to Comments 0008-20 through 0008-22. However, the same concerns regarding varying individual tolerances and anomalous ambient conditions remain. There is no satisfactory means to measure the subjective effect of noise on every individual. Thus, even with mitigation, noise impacts are significant and unavoidable.

The comment also states that the absolute setback for operations should be 650 feet, based on Table 4.12-15 in the SREIR. See SREIR (October 2020), Vol. 1, at 4.12-44. The 650-foot distance is intended to address the incremental ambient component of the County's Noise Standard. The allowable activity-related noise varies under this prong of the County's Noise Standard based on the existing ambient noise in the vicinity of the activity site. The 650-foot mitigation triggering distance is based on the 49 dB contour line for diesel-powered well production. For a discussion of the basis of the 49 dB contour, please see Response to Comment 0008-20. If there is a sensitive receptor located within 650 feet of a producing well, there is a presumption that the activity noise will exceed the County's Noise Standard. To proceed under the Ordinance, the applicant must prepare an Acoustic Noise Reduction Report using site-specific measurements of existing noise to determine whether there will be an exceedance and, if so, implement noise reduction measures to achieve the County's Noise Standard. See Responses to Comments 0008-21 and 0008-22. The 210-foot setback is derived from the 65 dB contour line for diesel-powered well production. The Kern County General Plan establishes an absolute noise limit of 65 dB. This prong of the County Noise Standard applies uniformly to every activity site and is included in MM 4.12-2 as a setback rather than a mitigation triggering distance.

0014-13

The comment states that the statement in the SREIR's Alternative 7 section that this alternative will result in reduced economic development relative to the Project seems to contradict the statements about increased horizontal drilling under Alternative 7.

This is incorrect. It is entirely possible that, with implementation of Alternative 7, more wells would be drilled horizontally (resulting in higher emissions and more environmental impacts) and some wells would not be drilled at all (due to prohibitive costs of horizontal drilling in certain circumstances or the physical infeasibility of drilling horizontally in some locations). There is no reason why these two options would be mutually exclusive, and the comment has provided no support for this belief. If a 2,500-foot setback is instituted, some producers will choose to drill horizontally when it makes economic sense and is physically feasible, while some producers will choose not to drill at all due to cost and feasibility considerations. Thus, fewer total wells will likely be drilled across the County, as at least some wells that would have been drilled vertically but for the setback either cannot feasibly be physically drilled horizontally or are not economically viable, and many wells will be drilled horizontally instead of vertically when it makes sense. Both outcomes are likely to occur in concert with each other. Please see Responses to Comments 0061-84 through 0061-86.

0014-14

The comment states that a 2,500-foot setback may not be an unreasonable restriction on land use and questions the takings analysis under the Fifth Amendment in the SREIR.

Please see Responses to Comments 0009-84 through 0009-88 explaining potential takings liability in connection with the 2,500-foot setback alternative. The SREIR (October 2020) explains the potential for takings liability from limiting or eliminating mineral owners' rights to access their minerals. See SREIR (October 2020), Vol. 1, at 6-34-45. The discussion explains that land use regulations must be reasonable in light of the need for the regulations to protect public safety. While other jurisdictions may have adopted varying setback distances, distances with no science-based evidence are subject to litigation and, as staff have determined in consultation with legal advisors, have questionable legal viability for defense. Certain limitations on drilling, whether in the form of setbacks or other proscriptions in the Ordinance, could expose the County to potential takings liability, which would require the use of General Fund revenue during a time of fiscal emergency.

The SREIR contains a discussion of the concepts articulated in the legal authorities cited in the comment. Takings claims are treated differently depending on the nature of the claim. Any physical invasion of property compelled by regulation is a *per se* taking that requires compensation. *Lucas v. S.C. Coastal Council* (1992) 505 U.S. 1003, 1015 (*Lucas*). A regulation is also deemed a facial, *per se* taking where the regulation denies the owner all economically viable use of his property. *Lucas*, at 1015. Takings claims could apply under this theory depending on the type of potential restriction in an ordinance. However, regulatory takings may also occur—and compensation may be required—where the owner is deprived of some, but not all, of the economic use of the property. *Penn Cent. Transp. Co. v. City of New York* (1978) 438 U.S. 104, 123 (*Penn Central*). Under this theory, a variety of factors are evaluated to determine if a taking has occurred. A “regulatory taking” occurs when some governmental action restricts the owner’s use and enjoyment of the property that it amounts to a taking, even though there is no planned or formal exercise of the power of eminent domain. See *Hensler v. City of Glendale* (1994) 8 Cal.4th 1, 13 (“a ‘regulatory taking,’ [is] one that results from the application of zoning laws or regulations which limit development of real property”). Courts have recognized a landowner’s right to extract natural resources from a property as sufficient to support a regulatory takings claim. See *Pennsylvania Coal Company v. Mahon* (1922) 260 U.S. 393, 415–416 (finding that a property restriction that prohibited coal mining “in such a way as to cause the subsidence of, among other things, any structure used as human habitation” was a regulatory taking that required just compensation). In California, a regulation that “affords the respondents no adequate means of protection or substitute for their right to extract oil from the property” constitutes a taking. *Braly v. Board of Fire Com’rs of City of L.A.* (1958) 157 Cal.App.2d 608, 614 (declaring that the right to extract oil “is as much entitled to protection as the property itself, and the undue restriction of the use thereof is as much a taking for constitutional purposes as appropriating or destroying it”).

The comment states that a regulatory taking under the theory articulated in *Penn Central* would not be able to be shown. The *Penn Central* test is only a framework, and “[b]right line’ precedent is not the prevailing jurisprudential norm in this area of the law.” *Twain Harte Associates, Ltd. v. Cnty. of Tuolumne* (1990) 217 Cal.App.3d 71, 83–84. In *Penn Central*, the Court held the designation of a landmark by the New York City Landmarks Preservation Committee did not constitute a regulatory taking. The Court acknowledged that the landmark designation eliminated “air rights” above the property, but found that the designation “contemplate[d] that [the landowner] continue to use the property precisely as it has been used for the past 65 years,” which would allow the landowner to “profit” and generate a “reasonable return” on its investment. *Penn Central*, at 136–137. The Court noted that the landowner had only been denied one building approval, rather than the entirety of its air rights. *Penn Central*, at 136–137.

Regarding the Project, direct limitations on oil drilling by the Ordinance present a different factual circumstance from *Penn Central*. Here, if certain direct limitations on drilling were in place, many operators would not be allowed to continue using their property as they have. These existing operators have invested substantial resources and infrastructure in their property rights in the County. Even if operators have profited from those investments so far, their investment-backed expectations for the field are based on the prospect of continued drilling of new wells within this portion of the field. See *Avenida San Juan Partnership v. City of San Clemente* (2011) 201 Cal.App.4th 1256, 1273. This would be particularly true for operators who have invested in their properties exclusively for use as an oil field or oil and gas assets. *Penn Central*, at 130, fn. 30. These concepts of regulatory takings are described in the SREIR in the context of the 2,500-foot setback, but are applicable to any potential limitation on drilling that deprives mineral rights owners of use or access to their property without substantial evidence of the reasons for the setback. The SREIR thus contains a thorough discussion of the infeasibility of such restrictions. Please see Responses to Comments 0009-62, and 0009-65 through 0009-83 for a discussion of why the 2,500-foot setback alternative is not reasonable nor required. Please also see Responses to Comments 0061-58 through 0061-96.

The comment states that, according to the UC Berkeley Center for Law, Energy, and the Environment’s report *Legal Grounds: Law and Policy Option to Facilitate a Phase-Out of Fossil Fuel Production in California* (Report), there are ways to craft regulations to avoid constitutional takings challenges (UC Berkeley 2020). The Report does not state this. The Report suggests various ways to “limit” potential takings liability but does not state that there are ways to completely avoid constitutional takings challenges when crafting setback requirements. The Report states that setbacks must contain “provisions to minimize

challenges based on constitutional takings claims.” Report, at p. 2 (emphasis added). It also states that, while legal experts have challenged findings of takings liability for all setbacks, “only a small subset of well operators could bring successful lawsuits for some (let alone all) of the value of their claims.” Report, at p. 11. This makes clear that at least some takings liability would still remain, regardless of any of the provisions the Report argues are intended to minimize it. The Report also clearly states that “any new law or regulation limiting the ability of a current owner to drill or operate wells, including but not limited to, setback rules, could potentially be subject to challenge on this constitutional basis, “which would expose the implementing government body to potentially significant litigation costs (and even greater compensation costs should a claim prove successful).” Report, at p. 31.

The Report also explains that takings analysis is a fact-specific undertaking and thus makes clear that it is impossible for any study or researchers to definitely state that no takings liability would be possible if certain provisions are included in a setback rule. See Report, at pp. 31–32. The Report explains that operators with vested rights and who have performed work and spent funds in reliance on those rights would likely have a strong takings claim. The Report thus makes clear in multiple places that it is providing suggestions for how to reduce or eliminate the risk of takings claims and possible litigation, but is not stating that takings liability will be eliminated, or that it is even possible to eliminate it completely, when crafting a setback regulation. The Report does not contradict the legal analysis of the independent judgment of the County legal advisors provided in the SREIR, as described above, regarding potential legal liability under takings claims.

0014-15

Please see Responses to Comments 0014-11 through 0014-14.

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7.3.5 Interested Parties

15 Salvador Solorio-Ruiz

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**Councilmember
Salvador Solorio-Ruiz**

I am writing today against the proposed oil and gas expansion ordinance being brought forward to the board of supervisors because this ordinance will have health risks and add to our climate crisis that we are facing even here locally in the central valley. Especially in these times of COVID-19, with this virus compromises our lungs which makes it difficult to breathe. We need to make sure we are prioritizing the health of our community and that includes our air quality. This ordinance will make things worse. I urge the Board of Supervisors to reject this ordinance, that would hurt our families public health for decades.

Regards,

Delano City Councilmember Salvador Solorio-Ruiz

0015-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

16 Southern California Gas Company

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Cindi Hoover

From: SoCalGasTransmissionUtilityRequest
<SoCalGasTransmissionUtilityRequest@semprautilities.com>
Sent: Tuesday, December 1, 2020 2:09 PM
To: Cindi Hoover
Subject: DCF: 2021-20- / SCH 2013081079
Attachments: 2021-20-.pdf; 2021-20-GEN REQ.pdf; 2021-20-MAP REQUEST.pdf

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Good Afternoon,

Thank you for letting us know about this project. The project area illustrated is far too large to provide information on, however. Please see the following link that will provide you of an idea of where our Transmission pipelines are located within your project boundary: [SOCALGAS - NATURAL GAS PIPELINE MAP](#).

Attached is a letter from the Transmission Department of SoCalGas stating that we have high pressure gas transmission facilities within your proposed project vicinity. Our general requirements when performing work or planning projects near SoCalGas high pressure lines are stated in this letter. If you require additional assistance, please let us know and an engineer will be assigned.

Please reference the Document Control File number (DCF) on all future correspondence in regards to this project.

Thank you,

Gas Transmission Technical Services



PLEASE VISIT OUR INTERACTIVE WEBSITE TO VIEW OUR HIGH PRESSURE DISTRIBUTION AND TRANSMISSION LINES: [SOCALGAS - NATURAL GAS PIPELINE MAP](#).

TO HELP THE ENVIRONMENT AND TO EXPEDITE RESPONSES, PLEASE SEND FUTURE PROJECTS AND CORRESPONDING ATTACHMENTS VIA EMAIL: SoCalGasTransmissionUtilityRequest@semprautilities.com

Please allow up to 30 days to receive a response to all future utility requests

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2021-20-

**DRAFT SUPPLEMENTAL RECIRCULATED ENVIRONMENTAL IMPACT REPORT (SREIR)
(OCTOBER 2020)
CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)
NOTICE OF AVAILABILITY FOR PUBLIC REVIEW**

This is to advise that the Kern County Planning and Natural Resources Department has prepared a Draft Supplemental Recirculated Environmental Impact Report (SREIR) (October 2020) for Revisions to the Kern County Zoning Ordinance – 2020 (A), Focused on Oil and Gas Local Permitting. (SCH 2013081079)

As mandated by State law, the public review period for this document is 45 days.

CEQA Guidelines Section 15088.5 (f) (1) provides that when an Environmental Impact Report (EIR) is recirculated, Kern County, as Lead Agency, may require that reviewers submit new comments on the SREIR, and the lead agency need not to respond to those comments received in the earlier circulation period. Kern County will therefore respond in the Final Supplemental Recirculated EIR to new comments during this comment period and through the Planning Commission and Board of Supervisors hearings. The document and documents referenced in the Draft SREIR (October 2020), are available for review at the Planning and Natural Resources Department, 2700 "M" Street, Suite 100, Bakersfield, CA 93301 by appointment or on the Department website (<https://kernplanning.com/SREIR2020-oil-gas-zoning-revisions/>).

The Kern County Planning and Natural Resources Department will host a virtual public briefing workshop to provide an overview of the document on: **November 10, 2020**, at 1:30 pm., via Microsoft Live Events. Instructions for participating in the virtual public workshop will be available on the Kern County Planning and Natural Resources website (www.kernplanning.com) on November 6, 2020.

A public hearing has been scheduled with the Kern County Planning Commission to receive comments and consider the project for recommendation for approval, conditional approval or denial to the Kern County Board of Supervisors on: **February 11, 2021**, at 7:00 p.m. or soon thereafter, Chambers of the Board of Supervisors, First Floor, Kern County Administrative Center, 1115 Truxtun Avenue, Bakersfield, California. A notice, as required by law will be sent in advance of the hearing and will provide the details for participation. Spanish translation will be provided at the Planning Commission Hearing.

The comment period for this document closes on December 14, 2020.

Project Title: Draft Supplemental Recirculated Environmental Impact Report (October 2020) for Revisions to the Kern County Zoning Ordinance – 2020 (A), Focused on Oil and Gas Local Permitting

Project Location: The Project Boundary (Local Permitting Boundary Area) encompasses 3,700 square miles and generally includes the San Joaquin Valley Floor portion of Kern County up to an elevation of 2,000 feet. The boundary includes: west side -the San Luis Obispo County line, north side - the Kings and Tulare county lines, east and south sides - the 2,000-foot elevation contours, squared off to the nearest section line.

Project Description: The purpose of this Supplemental Recirculated Environmental Impact Report is to provide compliance with CEQA for the reconsideration by the Planning Commission and Board of Supervisors of the Zoning Ordinance revisions focused on Oil and Gas Local Permitting.

The proposed Project is a reconsideration of revisions to various Chapters of Title 19 Kern County Zoning Ordinance to implement a new permit process for oil and gas activities. The revisions include new site development standards and review processes for all oil and gas exploration, extraction, operations, and production activities in unincorporated Kern County by:

- (a) Removing the “Unrestricted Drilling” Section in Chapter 19.98 and updated “Drilling by Ministerial Permit” and “Drilling by Conditional Use Permit” Sections;
- (b) Establishing “Tier Area” maps to address different land uses and zone districts where oil and gas activities occur and are proposed to occur in the future;
- (c) Establishing an Oil and Gas Conformity Review and Minor Activity Review, as part of the “Drilling by Ministerial Permit” Section in Chapter 19.98, to ensure compliance with all applicable Development and Implementation Standards and Conditions;
- (d) Establishing Development and Implementation Standards and Conditions Section in Chapter 19.98;
- (e) Establishing requirements for site plan sign-off by owners of the surface and minerals for split estate ownership;
- (f) Revising additional Chapters of the Zoning Ordinance to ensure consistency with the new requirements of this SREIR. These Chapters include: 19.08 – Interpretations and General Standards, 19.48 – Drilling Island (DI) District, 19.50 – Floodplain Primary District, 19.66 – Petroleum Extraction (PE) Combining District, 19.81 - Outdoor Lighting (Dark Skies Ordinance), 19.88 – Hillside Development, 19.102 – Permit Procedures, and 19.108 – Nonconforming Uses, Structures, and Lots.

Proposed 2020 revisions to Title 19 – Kern County Zoning Ordinance are the same as the ordinance adopted by the Board of Supervisors in November 09, 2015, and implemented until March 25, 2020, with the exception of the following changes:

- Update of names of County departments and State agencies that have changed since 2015, reference to this SREIR, and implementation details.
- Clarification of process for monitoring Split Estate 120 day process.
- Adjustment of Tier Maps for technical geographic information system (GIS) errors identified from 2015 adoption.

Background

The County prepared and circulated a Draft Environmental Impact Report (DEIR) and Final Environmental Impact Report (FEIR) for amendments to Title 19 of the Kern County Zoning Ordinance (Ordinance), Chapter 19.98 (Oil and Gas Production) and related sections of the Ordinance in 2015. The Kern County Board of Supervisors unanimously approved the Ordinance amendments and certified the FEIR on November 9, 2015 (2015 FEIR). Several parties filed lawsuits challenging the adequacy of the certified 2015 FEIR, and the cases were consolidated in the Kern County Superior Court. On April 20, 2018, the Court issued a judgment upholding 2015 FEIR, except for two issues. The judgment did not vacate any portion of the Ordinance or 2015 FEIR. The County subsequently prepared and circulated a Draft Supplemental Environmental Impact Report (2018 SEIR) in response to the judgment. The SEIR was certified by the County Board of Supervisors on December 11, 2018, and was not legally challenged.

Several parties appealed the Superior Court judgment. In October 2019, the Appellate Court rejected constitutional claims against the Ordinance amendments. On February 25, 2020, the Appellate Court issued an opinion that upheld the Superior Court judgment and the adequacy of the certified 2015 FEIR except for “five areas in which the EIR did not comply with CEQA: (1) mitigation of water supply impacts; (2) impacts from PM2.5 emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well Health Risk Assessment (MWHRA) for public review and comment.” The opinion set aside the previously approved Ordinance amendments and the certification of the 2015 FEIR. The opinion further directed the County, “in the event it decides to present the Ordinance (in its present or

a modified form) to the Board for approval, to correct the CEQA violations identified in this opinion," to prepare "a revised EIR correcting the CEQA violations," and to prepare and publish "responses to the comments received before certifying the revised EIR and reapproving the Ordinance." The County Board of Supervisors rescinded the approved Ordinance amendments and decertified the 2015 FEIR on May 19, 2020 (Resolution 2020-116). The purpose of this Supplemental Recirculated Environmental Impact Report is to provide compliance for CEQA.

A Draft SREIR (August 2020) was prepared, incorporating agency and public comments received during the NOP/IS and Scoping Process, and circulated August 3, 2020, for a 45 day public review period. This is the second circulation of a DSREIR for this process and incorporates all comments received on the Draft SREIR (August 2020) and the full document circulated August 2020. This SREIR (October 2020) shows all text changes from the earlier SREIR (August 2020) as italics, with text additions underlined and text deletions as strikeouts.

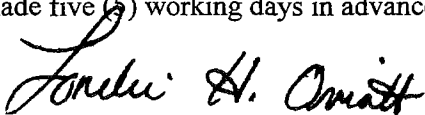
Anticipated Significant Impacts on Environment: Aesthetics, Agricultural Resources, Air Quality; Biological Resources; Cultural Resources, Greenhouse Gas, Energy, Hydrology and Water Quality, Noise, and Utilities and Service Systems.

Document can be viewed online at: <https://kernplanning.com/SREIR2020-oil-gas-zoning-revisions/>

For further information, please contact: Cindi Hoover, Planner III at (661) 862-8629 or hooverc@kerncounty.com

**AMERICANS WITH DISABILITIES ACT
(Government Code Section 54953.2)**

Disabled individuals who need special assistance to attend or participate in a Kern County Planning and Natural Resources virtual workshop may request assistance at the Kern County Planning and Natural Resources Department, 2700 "M" Street, Suite 100, Bakersfield, California 93301, or by calling Cindi Hoover at (661) 862-8629. Every effort will be made to reasonably accommodate individuals with disabilities by making meeting materials available in alternative formats. Requests for assistance should be made five (5) working days in advance whenever possible.



LORELEI OVIATT, AICP, Director
Planning and Natural Resources Department

To be published once only on next available date and as soon as possible

The Bakersfield Californian
Daily Independent
Kern Valley Sun
Mojave Desert News
Tehachapi News
Rosamond Weekly News
Daily Midway Driller

CLH

cc: County Clerk (2) (with fee)
All Supervisorial Districts

Environmental Status Board
Planning Commissioners



Transmission Technical
Services Department

9400 Oakdale Ave
Chatsworth, CA 91311
SC9314

December 1, 2020

Cindi Hoover
Kern County Planning & Natural Resources Dept
hooverc@kerncounty.com

Subject: SCH 2013081079

DCF: 2021-20-

The following are general requirements provided when performing work or planning projects near SoCalGas high pressure lines. Please review requirements along with project plans and notify SoCalGas Transmission Department about any questions or conflicts.

It is highly recommended that communication is maintained with SoCalGas to address all conflicts. Depending on the specific scope of your project there may be less or more requirements that need to be discussed regarding your project.

- 1- Consideration must be given to the safety of our pipeline(s) during all project stages.
- 2- SoCalGas must have continuous and uninterrupted access to the pipeline(s) and easement(s). In addition, SoCalGas conducts routine patrols and surveys of the pipeline(s); SoCalGas needs drivable access along the pipeline(s)/easement(s).
- 3- Buried pipelines must have a minimum cover of 3 feet and a maximum cover of 7 feet below finished grade. No change of grade whatsoever, even within these parameters, shall be made without prior approval of SoCalGas.
- 4- Prior to SoCalGas approving encroachment onto its easement(s), SoCalGas must be furnished with final grading plans showing the depth of the pipeline(s) below the existing surface and the depth of the pipeline(s) below the proposed finished grade. These elevations must meet SoCalGas' requirements for buried pipelines.
- 5- No permanent structures, such as buildings, block walls, foundations, gates, etc., shall be constructed within the easement or over the pipeline(s).

0016-1
Cont'd

- 6- There shall be no planting of trees or other deep-rooted plants within the easement(s) or over the pipeline(s).
- 7- Substructures shall cross perpendicular to the easement(s). Substructure crossings must provide a minimum of 18-inches vertical clearance from the pipeline(s). Additional separation is required for leach lines, fuel lines, etc.
- 8- Parallel encroachments within the easement(s) are prohibited. In areas where a parallel substructure is being constructed outside of the easement(s), SoCalGas requires five feet of separation, with three feet of undisturbed fill, in order to protect the integrity of our facilities and allow the facilities to be safely accessed during inspection, maintenance, and repair. Additional separation may be needed for leach lines, fuel lines, high voltage electric, etc.
- 9- All encroachments onto SoCalGas' easement(s) must have written approval of SoCalGas prior to construction or encroaching onto the easement(s).
- 10- All work within the SoCalGas easement(s) and/or within 10 feet of the pipeline(s) must be witnessed by a SoCalGas representative, and no work will be allowed without the SoCalGas representative on site.
- 11- No heavy equipment shall cross the pipeline(s) without SoCalGas' approval. Additional protective measures may be required where heavy equipment is expected to cross the pipeline(s).
- 12- No mechanical equipment shall operate within three horizontal feet of the pipeline(s), and any closer work must be performed by hand.
- 13- No mechanical equipment shall operate within two vertical feet of the pipeline(s), and any closer work must be performed by hand.
- 14- Buried pipeline(s) shall not be left exposed, and exposed pipeline(s) shall not be buried, without prior inspection and approval by SoCalGas. If the pipeline(s) are exposed during construction (e.g. substructure crossings, etc.), the pipeline must be backfilled with sand or zero-sack slurry only.
- 15- No vibratory compaction is permitted over the pipeline(s). In rare cases, vibratory compaction may be approved by SoCalGas' Engineering Department following review of detailed site conditions, pipeline data, and equipment specifications.
- 16- All contractors and subcontractors must be notified of the presence of the pipeline(s).
- 17- Contractors and subcontractors must call DigAlert (811) at least 2 working days prior to construction, grading, or excavation.
- 18- Once approved, encroachments within SoCalGas' easement(s) shall be documented in an easement amendment or other document, as deemed appropriate by SoCalGas' Land Services Department.

In addition to the previous requirements, SoCalGas recommends the following:

- 19- Potholes should be made, as necessary, to establish the horizontal and vertical alignment of the pipeline(s) within the project area. This information should be indicated on the plans, as needed. CAUTION: SoCalGas personnel must be present during potholing operations. Arrangements for SoCalGas personnel to stand by during potholing activities can be made by calling DigAlert at 811.
- 20- Consideration should be given to building setbacks from the easement lines. A minimum 15-foot setback is recommended whenever possible.
- 21- All potential buyers or tenants of the property should be made aware of the presence of the pipeline(s) and easement restrictions.

Best Regards,

SoCalGas Transmission Technical Services



Transmission Technical
Services Department

9400 Oakdale Ave
Chatsworth, CA 91311
SC9314

December 1, 2020

Cindi Hoover
Kern County Planning & Natural Resources Dept
hooverc@kerncounty.com

Subject: SCH 2013081079

DCF: 2021-20-

Southern California Gas Company (SoCalGas) Transmission Department operates and maintains high-pressure natural gas transmission pipeline(s) in the vicinity of your project. The pipeline is shown on the attached map(s). Please note, only the high-pressure transmission pipeline information is current on these atlas prints.

Our Gas Distribution Department may have other gas facilities within your project area. To assure no conflict with the SoCalGas' distribution pipeline system, please contact

NorthwestDistributionUtilityRequest@semprautilities.com.

This is only a response to a gas facility map request; a review of potential conflicts associated with your request has not been conducted. Consequently, **this letter does not constitute clearance for any construction work near or around SoCalGas' pipeline(s)**. As your project plans are developed, you must notify SoCalGas - Gas Transmission Department regarding the improvements that are proposed near our pipeline(s) and within our easement(s) before you begin any construction, including potholing. In doing so, please allow sufficient time as there may be certain requirements that need to be incorporated into your project's design and could significantly affect your project construction schedule.

Best Regards,

Pipeline Planning Assistant
SoCalGas Transmission Technical Services
SoCalGasTransmissionUtilityRequest@semprautilities.com

0016-1
Cont'd

0016-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted for the record.

17 Warren Gold MD

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Cindi Hoover

From: Gold, Warren M <Warren.Gold@ucsf.edu>
Sent: Sunday, December 13, 2020 8:02 AM
To: Cindi Hoover
Cc: Gold, Warren M
Subject: No More oil expansion Kern County

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Kern County already pumps a huge % of our oil. The children in this county are already at risk of dying young. We do not need more oil or oil wells in Kern County.

0017-1

Warren Gold MD

0017-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

18

Lucy G. Clark

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Cindi Hoover

From: Lucy Clark <lucyg391@gmail.com>
Sent: Saturday, December 12, 2020 8:13 PM
To: Cindi Hoover
Subject: Draft Supplemental Recirculated EIR for Revisions to Title 19 – Oil and Gas Local Permitting

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Kern County Board of Supervisors:

As a resident/citizen of Kern County and someone who has acquired Adult On-set Asthma during my years here, I am writing to ask you to NOT APPROVE/PASS the Draft Recirculated EIR for Oil and Gas Local Permitting.

Please spend your time and energy moving our county into the 21st Century, and into providing clean energy jobs to our citizens working in the oil business. I understand the role the oil industry has provided in the past to our tax base and non-profits, but this is the time for stopping the further advance of this irredeemable industry, before it dooms us to an unlivable Earth. In the meantime, protect our residents from the pollutants that have given me the life-altering disease that I have acquired, especially our children! Please protect future generations all over the Earth from the terrible changes being made by a warming climate.

This is the time to make a moral and ethical stand to protect the people you represent.

Sincerely,
 Lucy G Clark
 HC 3 Box 88
 Granite Station
 Bakersfield, CA
 93308-0124

...

0018-1

0018-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

19

Leanne Grossman

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Cindi Hoover

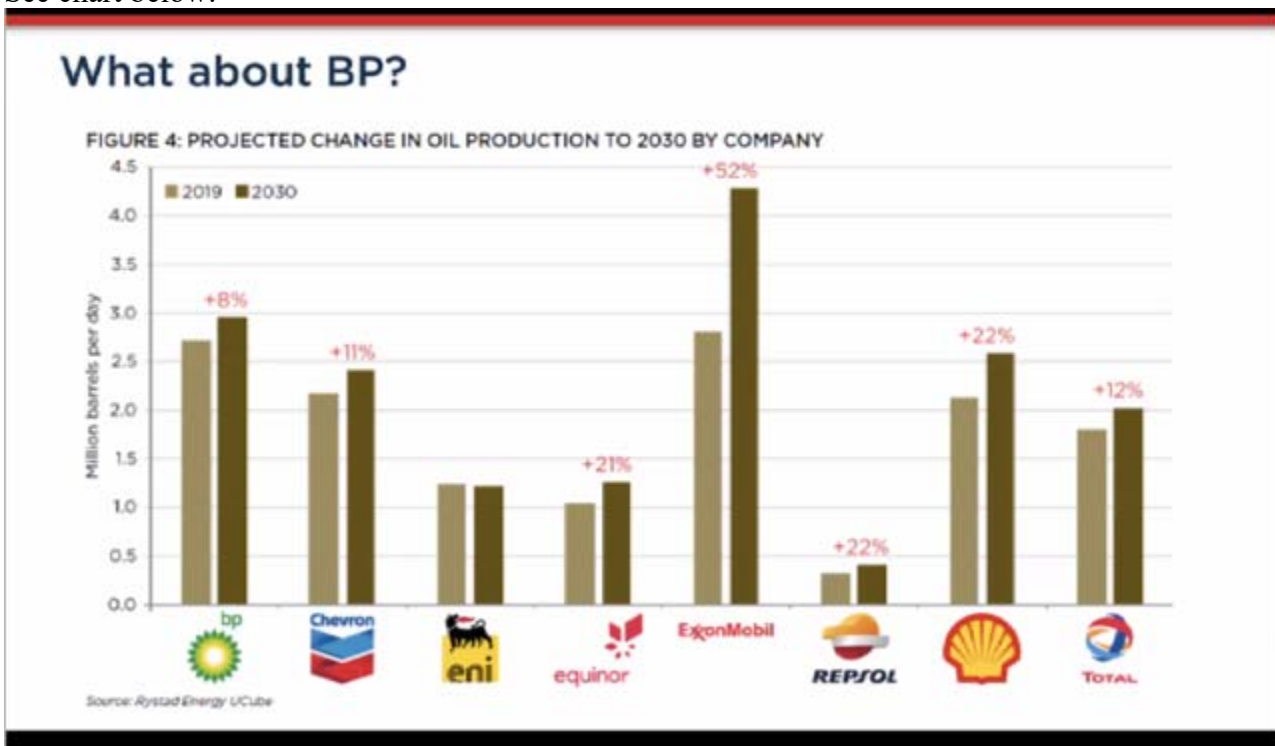
From: Leanne Grossman <leanne@portfolio-of-passions.com>
Sent: Saturday, December 12, 2020 1:20 PM
To: Cindi Hoover
Subject: Comments on Kern County Potentetial Oil Well Expansion

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

0019-1

To Whom It May Concern:

Climate change is real and dangerous to people's health. We can not allow any new oil drilling or the climate will keep getting hotter. Currently, although several companies have committed to reducing emissions, 100% of the top 10 are doing exploration for new wells. THIS IS UNACCEPTABLE! Humanity can not survive this. See chart below.



I object to the addition of 70,000 new wells in Kern County. oil is going under in the stock market and is an unviable, unsustainable form of energy.

Sincerely,

Leanne Grossman, she/her, ella

Lisjan Ohlone territory of Huchiun (Oakland, CA); www.NatureRhythms.net

0019-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

20

Fabiola Orozco

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From: Fabiola Orozco <fabiolaorozco1994@gmail.com>

Sent: Wednesday, November 4, 2020 4:01 PM

To: District1 <district1@kerncounty.com>; district2 <district2@kerncounty.com>; district3 <district3@kerncounty.com>; district4 <district4@kerncounty.com>; district5 <district5@kerncounty.com>

Subject: Re: Proposed Oil and Gas Ordinance

On Wed, Nov 4, 2020 at 3:55 PM Fabiola Orozco <fabiolaorozco1994@gmail.com> wrote:

0020-1

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. In particular I expect a response from Mark Maggard who is representing my district.

The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County.

This ordinance, “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting,” if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate.

Kern County is already home to about 80 percent of California’s oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

In community,

Fabiola Orozco

Concerned Resident

0020-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

21

Kathy Astromoff

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From: [Kathy Schoback](#)
To: [Cindi Hoover](#)
Subject: Comment on SREIR for "Revisions to Title 19 - Kern County Zoning Ordinance (2020A) Focused on Oil and Gas Local Permitting)
Date: Wednesday, November 18, 2020 1:42:02 AM

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Please do not pass this ordinance.

To combat climate change, fossil fuel needs to stay in the ground.

And it's ridiculous to bundle future projects into a single environmental review - why even bother?

Stop this madness.

Kathy Astromoff

0021-1

0021-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

22

Sydney Pitcher

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From: Sydney Pitcher <syditude@gmail.com>

0022

Sent: Monday, November 23, 2020 3:08 PM

To: district@kerncounty.com <district@kerncounty.com>; Department, Planning <Planning@kerncounty.com>; cesar.aguirre@ccejn.org <cesar.aguirre@ccejn.org>; jflores@xn--crpeel-zg0c.org <jflores@xn--crpeel-zg0c.org>; Sydney Pitcher <syditude@gmail.com>

Subject: Please stop the oil expansion in Kern County.

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

0022-1

Hello, my name is Sydney and I'm emailing you to urge you to do the right thing and stop the massive oil expansion in Kern County, which would open up nearly 70,000 more wells. As you may know, Kern County is responsible for approximately 80% of California's oil production. With more evidence mounting on us that the climate crisis is real, with longer and hotter heat waves, to very frequent massive wildfires, to more potential for droughts and more powerful, sea level rise and destructive natural disasters, we must do what we can to salvage our one and only planet before it's too late. It has been said that we have less than 10 years for the world to avert the worst climate catastrophe that life has to offer. This ginormous oil expansion would open the floodgates for massive amounts of climate wrecking air pollution with countless toxic chemicals entering our atmosphere, poisoning our future generations and putting children's lives especially at risk. It could also open the floodgates for more toxic and destructive oil spills. Also, I am absolutely saddened and disheartened to know that petroleum facilities for oil, gas and even coal are often times built where communities of color live, making communities of color sacrifice zones. This results in black and brown communities experiencing many more negative health problems such as asthma, cancer and even a weaker immune system that puts them over 50% more likely to contract and die from COVID-19 than white communities. We are literally taking advantage of the fact that often times communities of color don't have as much of a voice and have poor access to education due to their financial circumstances and we must work hard to break the cycle of black and brown communities having to say "I can't breathe" in silence in order to combat environmental racism. This is a very shameful unwritten crime in my eyes. I recognize that as we move away from fossil fuels, it will put fossil fuel workers out of a job so let's find ways to help these fossil fuel workers transition to cleaner jobs. Let's consider maybe giving oil workers a stimulus check, not too big and not too small so they can get by as we help but challenge them to find a cleaner job. Never forget that every species on this earth, including humans need air, water and food to survive and the more we pollute the things that are essential for our survival, the less we are going to be able to be safe and survive. So please, contribute to protecting our environment and combating racism by having an open mind for other solutions and opposing this massive new oil expansion. Thank you and happy holidays. Please respond if you get a chance.

Sincerely,
Sydney

Sent from my iPad

0022-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

23

Emily Pfeiffer-Russell

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From: District1 <district1@kerncounty.com>
Date: November 20, 2020 at 11:53:45 AM PST
To: Lorelei Oviatt <Loreleio@kerncounty.com>, Craig Murphy <Murphyc@kerncounty.com>
Subject: FW: Fast-tracking an oil and gas permit in Kern

0023

From: Emily Pfeiffer <emily.pfeiffer@gmail.com>
Sent: Thursday, November 19, 2020 1:42 PM
To: District1 <district1@kerncounty.com>
Subject: Fast-tracking an oil and gas permit in Kern

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Dear Mr. Mick Gleason,

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County.

This ordinance, “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting,” if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate.

Kern County is already home to about 80 percent of California’s oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

Thank you in advance for your time and consideration for this important subject. It's not something we should rush, nor is it the general direction in which we should be moving. We need better air quality in Kern and more clean energy!

Regards,

Emily Pfeiffer-Russell

0023-1

0023-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

24

David Bezanson, PhD

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PROPOSED KERN COUNTY ORDINANCE FOR DRILLING NEW WELLS

Comments from David Bezanson, Ph.D.

Because over 80% of voters in a nationwide poll declared that they prefer clean energy instead of dirty energy, the ordinance proposal should be cancelled.

[82% of voters say 100% clean energy](#)

The ordinance is inconsistent with 2 recent Executive Orders from Gov. Newsom.

<https://www.gov.ca.gov/2020/09/24/governor-newsom-releases-california-climate-investment-framework/>

<https://www.gov.ca.gov/2020/09/23/governor-newsom-announces-california-will-phase-out-gasoline-powered-cars-dramatically-reduce-demand-for-fossil-fuel-in-californias-fight-against-climate-change/>

It is also inconsistent with AB32 and SB100 which aim to curtail GHGs while increasing the percentage of renewable electricity in our grid to 100% by 2045. New energy ordinances in Kern Co. should help to attain these goals. The renewable target for 2030 in SB100 is 60%. Thus, ordinances should incentivize renewable electricity generation in the county to reach 60% of all electricity generation by 2030. This requires accelerating the issuance of permits for generation of renewables while decreasing permits for fossil fuel generation, wells, and infrastructure.

Placing a moratorium on new drilling in CA is considerate of the fossil fuel industry. For over a dozen reasons, the fossil fuel industry is unsustainable. If new drilling is permitted, this will result in a boom-bust cycle that leaves the industry holding stranded assets, e.g., infrastructure and underground reserves. The bust will result in widespread furloughs and impairment of the fiscal health and profitability of the industry. An exacerbating problem is that the current cost of production is higher than the current price of oil per barrel. Instead of operating profit, companies will continue to have net operating losses. This industry is a risky source of tax revenue for additional reasons of tightening regulation, litigation, and constraints from new legislation.

Landowners have mineral rights. They own the underlying minerals and fossil fuel deposits when they own the land. However, because fossil fuel extraction and use is harmful to public health and environmental quality, government has jurisdiction and authority to place a moratorium on extraction. Such a moratorium should be enacted until the amount of carbon in the atmosphere decreases to <350 ppm.

The most essential function of government is to protect the safety and health of its citizens. Business plans, products, and practices that have been proven harmful should be halted if there are other products and practices that accomplish the same functions with significantly fewer hazards. It is well-proven that fossil fuel extraction and combustion, and their Scope 1, Scope 2, and Scope 3 emissions, are hazardous to the health of people and wildlife. The death rate of workers in the fossil fuel industry is 7 times higher than in any other industry. And the industry has one of the worst environmental justice impacts.

There are 650,000 miles of NG pipelines in CA and over 1,000 leaks are reported daily. The fossil fuel industry should be required to significantly improve maintenance of existing pipelines for at least 1 year

0024-1

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before new permits or a drilling ordinance is entertained. The cost of producing fossil fuel energy is increasing while the cost of generating renewable energy is falling.

There are numerous seismic fault-lines in Kern Co. that pose the risk of damaging infrastructure, including rupture of pipelines that cause hazardous leaks or explosions. Use of fossil fuels accelerates climate change, which includes warming. Record high temperatures are occurring in CA each year. On many days per year, the high temperature makes working outdoors hazardous.

As of Dec. 2020, the CA Dept. of Finance is conducting an investigation of well permits being issued by CalGEM without environmental reviews. Kern Co. regards CalGEM as a "Responsible Agency" for implementing CEQA protocols. Whether CalGEM is responsible is questionable. Thus, a new ordinance in Kern Co. should be deferred until after DoF completes its investigation.

Because the fossil fuel industry is unsustainable, Kern Co. needs a plan to diversify its economy. One avenue is renewable energy generation. This sector has more than half of the entire labor-force in the CA energy industry. It is creating 3 times more jobs per \$1million invested than the fossil fuel industry.

A renewable energy ordinance and expansion plan should be studied. Its EIR analysis should be presented in a table such as Table I-4 in the Executive Summary, starting on p. 36. The study should include the Social Cost of Carbon (SCC).

SCC includes premature deaths, medical costs, degradation of natural resources, decreased GDP; property damage from climate-induced floods, windstorms, and wildfires; and increased cost of food. It excludes extraction of GHG emissions from the atmosphere. SCC does not include the millions of taxpayer dollars spent over decades to create and fund regulatory policies and agencies.

A July 2020 article published in *Nature Climate Change* estimates the current SCC to be between \$100 and \$200/MT. Let's use \$150/MT.

<https://yaleclimateconnections.org/2020/07/trump-epa-vastly-underestimating-the-cost-of-carbon-dioxide-pollution-to-society-new-research-finds/#:~:text=The%20latest%20research%20by%20an,to%20nearly%20%24600%20by%202100.>

There is widespread scientific consensus that the SCC will continue to increase annually unless we achieve deep decarbonization. Per CARB, a total of 424 MMT of CO₂e were emitted in 2017. The total annual SCC from CA emissions is 424 MMT CO₂e x \$150/MT CO₂e = \$63,600,000,000 (\$63.6 billion).

Note that the CO₂e emissions data from CARB excludes many sources of GHGs, e.g., leaks from NG infrastructure. SCC excludes the social cost of other fossil fuel emissions. These toxic co-pollutants include benzene, carbon monoxide, nitrogen oxides, sulphur oxides, ground-level ozone, and particulate matter (black carbon). Each increases incidence of cardiovascular disease, cancer, and respiratory illnesses.

A study released in Aug. 2019 by Inst. for Applied Economics estimated that CA received the following amounts of taxes from the fossil fuel industry in 2018. IAE is paid by clients to draft and issue reports for a wide range of industries.

State and local \$22 billion

Sales \$11 billion

Property \$7 billion

Income \$1 billion

The sum of \$41 billion is significantly less than the SCC.

In 2018, GHG emissions increased from 2017 in CA, US, and worldwide. Increases in CO₂, nitrous oxides, and methane were significant. FF combustion and infrastructure leaks are the top sources of each.

Because FF receives federal subsidies, it is in effect paying less than its share of SCC per dollar of taxable income than non-subsidized industries and individuals.

It is imperative that we swiftly enact a diversity of policies to mitigate our climate crisis. The lag time between a decrease in global GHG emissions and a decrease in air temperature is about 38 years.

Carbon in the atmosphere recently reached a historic high of 417 ppm and is projected to rise further.

The U.N. Intergovernmental Panel on Climate Change issued a report in Oct. 2018 indicating that we must significantly diminish GHG emissions by 2030 to prevent severe ecosystem damage.

<https://www.theguardian.com/environment/2018/oct/08/global-warming-must-not-exceed-15c-warns-landmark-un-report>

0024-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment states that the revised Ordinance is inconsistent with the California Governor's two recent executive orders (EOs) related to greenhouse gas (GHG) emissions goals, as well as inconsistent with Assembly Bill 32 and Senate Bill 100, which relate to GHG emissions reductions goals and incentivizing renewable energy sources. The comment also states that ordinances should accelerate issuance of permits for generation of renewables while decreasing permits for fossil fuel production.

This latter comment is a general statement and is noted. Please see Response to Comment 0024-9 explaining that for this particular Project, a renewable energy alternative was considered and rejected in the 2015 FEIR. See Global Response (GR) 1 – Comments Beyond the Scope of the SREIR. Climate change, including consistency with applicable regulations and authorities, is not one of the five topics that must be addressed in the SREIR. Please also see Response to Comment 0009-98 explaining what constitutes new or significant information under CEQA. The comment references two recent EO issued by the governor. The first, EO N-79-20, which is referenced by a link in the comment, was issued on September 23, 2020. EO N-79-20 calls for reduced transportation emissions by setting goals to achieving 100 percent zero-emissions vehicles by 2035 (for in-state sales of new passenger cars and trucks, drayage trucks, and off-road vehicles and equipment) and 2045 (for medium- and heavy-duty vehicles). The EO directs state agencies to adopt implementing regulations and report on assessments of and strategies for establishing zero-emissions vehicle infrastructure. To support the state's goal of achieving carbon neutrality by 2045, the EO directs state agencies to "expedite regulatory processes to repurpose and transition upstream and downstream oil production facilities," provide for decommissioning and remediation activities for former oil facilities, and to impose financial bonding requirements to cover anticipated costs. The EO directs the Department of Conservation's Geologic Energy Management Division (CalGEM) to propose a new health and safety draft rule "that protects communities and workers from the impacts of oil extraction activities." The EO set a December 31, 2020 deadline for CalGEM to propose such a rule, but CalGEM has not yet done so. The EO states that: "to protect the health and safety of our communities and workers the state must focus on the impacts of oil extraction as it transitions away from fossil fuel, by working to end the issuance of new hydraulic fracturing permits by 2024." However, the press release for the EO states that the Governor is seeking new legislation to phase out issuance of new hydraulic fracturing permits (Office of Governor Gavin Newsom 2020).

The comment references a second EO and provides a link to an announcement of the governor's release of the Climate Investment Framework pursuant to EO N-19-19, issued in September 2019. EO N-19-19 ordered the development of a framework to align California's three primary retirement systems' assets and investments with the state's goals of lowering GHG emissions and achieving carbon neutrality. The following are descriptions of those actions:

Executive Order N-19-19 - Climate Investment Framework

EO N-19-19 was signed by Governor Gavin Newsom in September 2019. This EO ordered the development of a framework to align California's three primary retirement systems' assets and investments with the state's goals of lowering GHG emissions and achieving carbon neutrality.

Executive Order N-79-20

EO N-79-20 was signed by Governor Gavin Newsom on September 23, 2020. This EO calls for reduced transportation emissions by setting goals to achieving 100 percent zero-emissions vehicles by 2035 (for in-state sales of new passenger cars and trucks, drayage trucks, and off-road vehicles and equipment) and 2045 (for medium- and heavy-duty vehicles). The EO directs state agencies to adopt implementing regulations and report on assessments of and strategies for establishing zero-emissions vehicle infrastructure. To support the state's goal of achieving carbon neutrality by 2045, the EO directs state agencies to "expedite regulatory processes to repurpose and transition upstream and downstream oil production facilities," provide for decommissioning and remediation activities for former oil facilities, and to impose financial bonding requirements to cover anticipated costs. In addition, the EO directs CalGEM to propose a new health and safety draft rule "that protects communities and workers from the impacts of oil extraction activities."

The governor's recent EOs do not constitute new or significant information, nor does this comment raise any other issue that is significant new information, because climate change and its indirect effects were known and addressed in the 2015 FEIR. See *Concerned Dublin Citizens v City of Dublin* (2013) 214 Cal.App.4th 1301 (the adoption of new guidelines for evaluation of GHG emissions was not significant new information requiring further CEQA review because information about the potential effects of those emissions was known and could have been addressed in connection with the certification of the original EIR). The 2015 FEIR contains an extensive discussion of climate change, including consistency with applicable regulations and policies, and thoroughly evaluates the impact of the Project as it relates to climate change, including consistency with plans, policies and regulations adopted for the purposes of reducing GHG emissions. See SREIR (October 2020), Vol. 3, 4.7, Greenhouse Gas Emissions and Global Climate Change, and SREIR (October 2020), Vol. 3, at 7-263–271 (2015 FEIR GR-GHG-1: GHG Methodology and Emission Estimates). The 2015 FEIR also explains that EOs alone are not binding authority on the Project. See SREIR (October 2020), Vol. 3, at 7-267–268; see also *Cleveland National Forest Foundation v. San Diego Association of Governments* (2017) 3 Cal.5th 497, 517 (stating that a lead agency may decline to utilize an Executive Order “as a measure of significance [where] the Executive Order does not specify any plan or implementation measures to achieve its goal”). The 2015 FEIR thus contains a thorough discussion of the issues raised in this comment concerning climate change and the Project's consistency with plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs.

0024-2

The comment states that the oil industry is characterized by an economic “boom and bust cycle” and is a risky source of tax revenue due to legislation, regulation and litigation.

This comment does not concern an environmental issue or identify a potential environmental impact that could require further analysis in the SREIR. See GR-1 – Beyond the Scope of the SREIR. For purposes of determining the baseline for environmental impact analysis, the SREIR acknowledges and discusses long-term volatility in the oil and gas industry. In discussing the baseline conditions, the SREIR explains the various factors that have influenced oil and gas production activity, including the price of oil and changing regulatory requirements. See SREIR (October 2020), Vol. 1, at 2-23–24; see also SREIR (October 2020), Vol. 5, Chapter 7.2.1, at 7-128–131 (2015 FEIR GR-6: Baseline: 2012) and 7-136–142 (GR-8: Future Well Projections). Please see also Responses to Comments 0009-100 and 0009-101.

0024-3

The comment states that, although landowners have mineral rights, the government has jurisdiction and authority to place a moratorium on fossil fuel extraction and should do so until atmospheric carbon decreases less than 350 particles per million.

The SREIR (October 2020) discusses the potential for takings liability in connections with limitation or elimination of mineral owners' right to access their minerals. Please see SREIR (October 2020), Vol. 1, at 6-34–45; please also see Responses to Comments 0009-84 through 0009-88. A moratorium on oil and gas drilling was considered and rejected as part of the “Drilling Ban on All Land” Alternative in the 2015 EIR, because it would “cause enormous economic impacts throughout the County and the state and would adversely impact the investment-backed expectations of Project Area mineral owners.” See SREIR (October 2020), Vol. 5, at 7-348 (2015 FEIR GR-Alt-1: Alternatives Eliminated from Consideration). The Drilling Ban Alternative and climate change are not among the five topics required to be addressed in the SREIR. Please see GR-1 – Beyond the Scope of the SREIR. The 2015 FEIR contains an extensive discussion of atmospheric carbon and climate change, and thoroughly evaluates the impact of the Project as it relates to climate change, including consistency with plans, policies and regulations adopted for the purposes of reducing GHG emissions. See SREIR (October 2020), Vol. 3, 4.7, Greenhouse Gas Emissions and Global Climate Change, and Vol. 5, at 7-263–271. The comment does not raise any issue with respect to climate change that is significant new information, because climate change and its indirect effects were known and addressed in the 2015 FEIR. Please also see Responses to Comment 0009-98 and 0009-102.

0024-4

The comment states that oil and gas activities should be halted as harmful business activities because there are other alternatives that “accomplish the same functions with significantly fewer hazards.”

Please see SREIR (October 2020) Chapter 6, Alternatives. The comment does not suggest alternatives that should be analyzed in the SREIR. The comment states that the fossil fuel emissions are hazardous to human health and wildlife, that the industry causes environmental justice impacts, and that the worker fatality rate in the fossil fuel industry is seven times higher than in any other industry. The comment references health hazards from Scope 1, 2, and 3 emissions, which are used to refer to

different sources of GHG emissions. Please see GR-1 – Beyond the Scope of the SREIR. The indirect impacts of climate change is not one of the five topics required to be addressed in the SREIR. Please also see Response to Comment 0009-98 explaining what constitutes new or significant information under CEQA. The 2015 FEIR contains an extensive discussion of climate change, including the trend of rising temperatures and increasing wildfires, heat waves, and floods, and thoroughly evaluates the impact of the Project as it relates to climate change, including consistency with plans, policies and regulations adopted for the purposes of reducing GHG emissions. See SREIR (October 2020), Vol. 3, 4.7, Greenhouse Gas Emissions and Global Climate Change, and Vol. 5, at 7-263–271; see also Response to Comment 0009-102.

Impacts associated with GHG emissions are cumulative in nature, rather than Project-specific. These impacts are addressed in Impact 4.7-1 and Impact 4.7-2 in the 2015 FEIR. Please see SREIR (October 2020), Vol. 3, Chapter 4.7, at 4.7-32–41. The SREIR conservatively mitigates the Project’s direct GHG emissions to net zero levels, an emission level below applicable thresholds of significance. See SREIR (October 2020), Vol. 5, at 7-97 (2015 FEIR GR-1: Ministerial Permit Process). Please see Table 1-3 for discussion of mitigation measures related to the reduction of Project impacts from GHGs. See SREIR (October 2020), Vol. 3, at 1-49. For a detailed discussion of Project impacts on wildlife in the Project Area, see Responses to Comments 0009-112 through 0009-116. Regarding environmental justice, please see GR-4 – Environmental Justice.

Worker safety is not among the five topics required to be addressed in the SREIR. Please see GR-1. The 2015 FEIR discusses worker safety. See SREIR (October 2020), Vol. 3, 4.8-16–17. While available data for the oil and gas extraction sector in California were limited, in a review of Occupational Safety and Health Administration data on fatalities in the oil and gas sector from 2003 to 2013, only three fatalities were reported, all of which occurred in 2006. Table 4.8-5 in the 2015 FEIR presented the rate of workplace fatalities in the oil and gas extraction industry from Bureau of Labor Statistics nationwide data for 2010–2013, averaging 15 per 100 workers. See SREIR (October 2020), Vol. 3, at 4.8-17. More recent Bureau of Labor Statistics nationwide data indicate that the industry fatality rate decreased to an average of nine per 100 workers for 2015–2018 (see U.S. Bureau of Labor Statistics 2020). The comment does not cite a source for comparison to other industries, but this statement may derive from a 2015 study of 2003–2013 data, which also reported a substantial decrease in fatality rates: “Although the fatality rate in the oil and gas extraction industry remains an average of seven times higher than among U.S. workers in general (25.1 compared with 3.7 per 100,000 per year), the oil and gas extraction industry has achieved a substantial decrease in fatality rates in recent years” (Mason et al. 2015). This study is not new information that was not known and could not have been known when the 2015 FEIR was certified, showing that the Project will have new or substantially more severe environmental impacts. See Cal. Pub. Res. Code § 21166; CEQA Guidelines § 15162.

0024-5

The comment claims that over 1,000 natural gas pipeline leaks are reported in California daily and states that the fossil fuel industry should be required to significantly improve maintenance of existing pipelines for at least 1 year before new permits or a drilling ordinance is entertained.

The comment does not provide a source for the claimed number of daily reported pipeline leaks. Existing conditions are considered part of the environmental baseline pursuant to CEQA. See CEQA Guidelines 15125. As the California Supreme Court held in *Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 321: “the baseline for CEQA analysis must be the ‘existing physical conditions in the affected area’ ... that is, the ‘real conditions on the ground’.” “This is so even if the current condition includes unauthorized and even environmentally harmful conditions that never received and, as a result of being incorporated into the baseline, may never receive environmental review.” *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal.App.4th 214, 249, citing *Citizens for East Shore Parks v. State Lands Com.* (2011) 202 Cal.App.4th 549, 561. Therefore, existing pipeline leaks within the Project Area are properly considered part of the environmental baseline for CEQA purposes, not a consequence of the Project. Regarding new pipelines included in the Project, please see Response to Comment 0006-21, which describes the numerous mitigation measures to address pipeline safety, including requirements for pipeline maintenance and inspection to detect leaks.

The comment also states that the cost of producing fossil fuel energy is increasing while the cost of producing renewable energy is falling. The comment does not provide a source for these claims and this portion of the comment does not concern an environmental issue or identify a potential environmental impact that could require further analysis in the SREIR. The comment is correct that the cost of renewable production has fallen, attributable in part to a now-shrinking pool of subsidies (EIA 2018). There is no clear trend regarding the cost of producing fossil fuel energy. A 2019 report presenting U.S. oil and gas capital expenditures from 2014 to 2018 shows that exploration and development expenditures declined from 2014 to 2016, then increased in 2017 and 2018 though remaining below 2014 levels (37 percent lower for exploration and 35 percent lower for development) (Ernst & Young 2019, p. 4). For more information regarding renewable energy initiatives in Kern County, please see Responses to Comments 0024-8 and 0024-9.

0024-6

The comment states that use of fossil fuels accelerates climate change and increasing temperatures, and that there are seismic faults in Kern County that pose risks to oil infrastructure.

See GR-1 – Beyond the Scope of the SREIR. Neither climate change nor geologic hazards is one of the five topics required to be addressed in the SREIR; both topics were addressed in the 2015 FEIR. The 2015 FEIR contains an extensive discussion of climate change, including increasing temperatures, and thoroughly evaluates the impact of the Project as it relates to climate change, including consistency with plans, policies and regulations adopted for the purpose of reducing GHG emissions. See SREIR (October 2020), Vol. 3, 4.7, Greenhouse Gas Emissions and Global Climate Change, and SREIR (October 2020), Vol. 5, , at 7-263–271 (2015 FEIR GR-GHG-1: GHG Methodology and Emission Estimates). The 2015 FEIR also contains extensive analysis on the implications of potential seismic activity as it relates to the Project. See SREIR (October 2020), Vol. 3, 4.6, Geology and Soils, and SREIR (October 2020), Vol. 5, at 7-260–263 (2015 FEIR GR-Geo-1: CCST: Produced Water and Earthquake Risk); SREIR (October 2020), Vol. 5, at 7-271–275 (2015 FEIR GR-Haz-1: Pipeline Integrity). The comment does not raise new information, and the 2015 FEIR contains a robust discussion of the general climate change and seismic issues raised in the comment.

0024-7

The comment states that the California Department of Finance (DOF) is conducting an investigation of well permits issued by CalGEM, questions whether CalGEM should be considered a “responsible agency” and proposes that the Ordinance should be deferred until DOF completes its investigation. CalGEM is properly identified as a responsible agency as defined in CEQA Guidelines § 15381, because it is a public agency other than Kern County (the lead agency) which has discretionary approval authority over the Project. DOF completed its investigation and issued a report on November 23, 2020, and there is no basis to delay the Ordinance. Please see Response to Comment 0061-107 for discussion of the DOF report.

0024-8

The comment states that the fossil fuel industry is unsustainable and that Kern County needs to diversify its economy with renewable energy generation. Please see GR-1 – Beyond the Scope of the SREIR.

0024-9

The comment states that a renewable energy ordinance and expansion plan should be studied, and that the SREIR should include an analysis on the social cost of carbon.

See GR-1 – Beyond the Scope of the SREIR. Neither climate change, nor the social cost of carbon, nor a renewable energy ordinance alternative is one of the five topics required to be addressed in the SREIR. The 2015 FEIR considered and rejected renewable energy alternatives to the Project. See SREIR (October 2020), Vol. 3, at 6-14–17, and SREIR (October 2020), Vol. 5, Chapter 7.2.1, at 7-351–356 (2015 FEIR GR-Alt-1: Alternatives Eliminated from Consideration). The 2015 FEIR contains an extensive discussion of climate change and its environmental impacts. See SREIR (October 2020), Vol. 3, 4.7, Greenhouse Gas Emissions and Global Climate Change, and SREIR (October 2020), Vol. 5, 7-263–271 (2015 FEIR GR-GHG-1: GHG Methodology and Emission Estimates). The comment does not raise any issue that is significant new information, because climate change and its effects—including social and economic effects—were known and addressed in the 2015 FEIR. See *Concerned Dublin Citizens v. City of Dublin* (2013) 214 Cal.App.4th 1301 (the adoption of new guidelines for evaluation of GHG emissions was not significant new information requiring further CEQA review because information about the potential effects of those emissions was known and could have been addressed in connection with the certification of the original EIR). Please also see Response to Comment 0009-98 explaining what constitutes new or significant information under CEQA.

While the impacts of the Project’s GHG emissions on the environment are thoroughly analyzed in the 2015 FEIR, purely economic and social impacts are not changes in the physical environment and CEQA does not require their analysis. See 14 Cal. Code Regs. §§15064(e) and 15382. Quantifying the impacts of GHG emissions using a social cost of carbon methodology is but one of many analytical tools that may be used in considering GHG emissions impacts. “The SCC protocol was ‘designed to quantify a project’s contribution to costs associated with global climate change’ ... [T]he SCC protocol ‘is provisional and was expressly designed to assist agencies in cost-benefit analyses associated with rulemakings,...’ *WildEarth Guardians v. Bernhardt* (D.N.M. Aug. 18, 2020, No. 1:19-cv-00505-RB-SCYY) 2020 U.S.Dist.LEXIS 149785, at *35, citing *High Country Conservation Advocates v. U.S. Forest Serv.*, 52 F.Supp.3d 1174, 1190 (D. Colo. 2014). Under the CEQA Guidelines, lead agencies have the discretion to determine the appropriate method of evaluating GHG emissions. See 14 Cal. Code Regs. §15064.4(a); see also *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal.4th 204, 217. Lead agencies

may rely on a qualitative analysis or performance-based standards, or prepare a quantitative analysis based on a model or methodology chosen by the agency, as long as that choice is supported by substantial evidence. See 14 Cal. Code Regs. §15064.4(a)(1)–(2), (c). The 2015 FEIR contains a robust analysis of the environmental impacts of the Project’s GHG emissions undertaken pursuant to the relevant, applicable CEQA Guidelines.

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Norene Griffin

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Cindi Hoover

From: Nory Griffin <norenegriffin@gmail.com>
Sent: Sunday, December 6, 2020 8:24 AM
To: Cindi Hoover
Subject: Comment on the Draft SREIR (October 2020)

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Dear Ms. Hoover,

RE: Draft Supplemental Recirculated Environmental Impact Report (October 2020) for Revisions to Title 19-Kern County Zoning Ordinance 2020 (A), Focused on Oil and Gas Local Permitting (SCD #2013081079)

I am writing to urge you to recommend the above named project for denial to the Kern County Board of Supervisors. As I understand it, this project will fast track the permitting of as many as 67,425 new oil and gas production wells in the county and all related infrastructure over the next 20-25 years. Such an expansion would nearly double the number of current production wells in the county at a time when California, the US, and the world need to be slamming the brakes on oil and gas production and use in order to preserve a livable climate. We are already living under the threat of a bursting carbon bubble with hundreds of billions of dollars in stranded assets. Embarking on a just transition to a clean energy economy would carry less long-term financial risk, improve public health, retrain oil and gas workers and move them to good union jobs, and better position the county to meet the world that's coming.

Sincerely,

Norene Griffin
Alameda, CA

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0025-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

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Danielle Russell

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Cindi Hoover

From: Danielle Russell <danielleerussell@gmail.com>
Sent: Monday, December 7, 2020 12:43 PM
To: Cindi Hoover
Subject: Submitting Comments on the Draft SREIR (October 2020)

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Hello,

As a resident of California, visitor of Kern County, and concerned citizen of the planet, I ask that you do not fast track the permitting of the new oil and gas wells. We should instead be focused on renewables which will protect local communities, and diversify economic opportunities.

Further, people in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels.

Please do not fast track the new wells.

Thank you,
Danielle Russell

0026-1

0026-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

27 Sequoia Riverlands Trust

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December 7, 2020

County of Kern
 Planning and Natural Resources Department
 Attn.: Lorelei H. Oviatt, AICP, Director
 2700 M Street, Suite 100
 Bakersfield, CA 93301-2323

RE: Draft Supplemental Recirculated Environmental Impact Report re: Permitting for Oil and Gas Operations (October 2020 Version)

Dear Ms. Oviatt:

I am writing on behalf of Sequoia Riverlands Trust (SRT) to comment on the reissued Draft Supplemental Recirculated Environmental Impact Report (DSREIR) for amendments to the Kern County Zoning Ordinance involving permitting procedures for oil and gas operations. SRT is an accredited, regional land trust that inspires love and lasting protection for important lands, including agricultural land in Kern County.

When the Zoning Ordinance amendments were proposed in 2015, SRT raised concerns about inadequate mitigation measures for impacts to farmland and rangeland.¹ A Supplemental Environmental Impact Report was prepared in 2018, and we again recommended that the County require meaningful mitigation for impacts to rangeland, a particularly pressing need given that the ministerial permitting process established by the Zoning Ordinance amendments would provide little leverage for landowners or easement holders to compel oil companies to minimize the footprint of their operations.² When a DSREIR that did not remedy these deficiencies, and in fact abandoned a highly feasible mitigation measure, was issued in 2020, we expressed our concerns in a third comment letter.³

¹ SRT comment letter submitted August 31, 2015.

² SRT comment letter submitted October 4, 2018.

³ SRT comment letter submitted September 1, 2020.

We are submitting this fourth letter because the reissued DSREIR still does not provide adequate mitigation for impacts to agricultural land. While it includes a new mitigation measure regarding legacy equipment, it concedes that impacts after implementing this measure would still be “significant and unavoidable.”⁴ Rather than taking additional steps to address these remaining impacts, the reissued DSREIR includes no additional mitigation measures for farmland loss, and specifically rules out the use of conservation easements. As discussed in SRT’s September 1, 2020 comment letter (incorporated by reference and attached hereto as Appendix A), conservation easements are a demonstrably feasible form of mitigation that makes a meaningful, cumulative contribution to protecting agricultural resources.

For the reasons stated in our September 1, 2020 letter, we respectfully request that the County amend the DSREIR to require all feasible mitigation measures for impacts to farmland and rangeland, including but not limited to the use of conservation easements. We appreciate the opportunity to participate in this process and look forward to your response.

Sincerely,



Cam Tredennick
Executive Director
Sequoia Riverlands Trust

⁴ RDSREIR, 4.2-41.



September 1, 2020

County of Kern
 Planning and Natural Resources Department
 Attn.: Lorelei H. Oviatt, AICP, Director
 2700 M Street, Suite 100
 Bakersfield, CA 93301-2323

RE: Draft Supplemental Recirculated Environmental Impact Report re: Permitting for Oil and Gas Operations

Dear Ms. Oviatt:

I am writing on behalf of Sequoia Riverlands Trust (SRT) to comment on the Draft Supplemental Recirculated Environmental Impact Report (DSREIR) for amendments to the Kern County Zoning Ordinance involving permitting procedures for oil and gas operations. SRT is an accredited, regional land trust that inspires love and lasting protection for important lands, including agricultural land in Kern County.

When the Zoning Ordinance amendments were proposed in 2015, SRT raised concerns about inadequate mitigation measures for impacts to farmland and rangeland.¹ A Supplemental Environmental Impact Report was prepared in 2018, and we again recommended that the County require meaningful mitigation for impacts to rangeland, a particularly pressing need given that the ministerial permitting process established by the Zoning Ordinance amendments would provide little leverage for landowners or easement holders to compel oil companies to minimize the footprint of their operations.² We are writing today because the DSREIR does not remedy these deficiencies, and in fact abandons a highly feasible mitigation measure that would help to counterbalance the cumulative impact of farmland loss.

Agricultural conservation easements have long been used to reduce the impacts of farmland conversion, and were included as part of Mitigation Measure 4.2-1 in the 2015 Draft EIR and 2018 Draft Supplemental EIR. Based on a misreading of the Court of Appeals' statement that

¹ SRT comment letter submitted August 31, 2015.

² SRT comment letter submitted October 4, 2018.

conservation easements “do . . . not create new agricultural land to replace the agricultural land being converted”³ and therefore do not reduce the impact of farmland loss to a level of insignificance, the DSREIR entirely removes Mitigation Measure 4.2-1.⁴

But it is well-established that “[e]ven when a project’s benefits outweigh its unmitigated effects, agencies are still required to implement all mitigation measures unless those measures are truly infeasible.”⁵ Conservation easements are demonstrably feasible. As an accredited land trust, SRT already holds mitigation easements on 15 properties in Kern County, totaling over 4,200 acres. These easements have helped to counterbalance impacts to habitat and agricultural land in contexts ranging from residential and commercial projects to infrastructure and energy development. We stand ready to work with the County and willing landowners to continue providing this form of mitigation.

The DSREIR appears to rule this out, without addressing the ways that conservation easements partially counterbalance impacts to farmland. A 1:1 mitigation requirement permanently protects an equal amount and quality of farmland to the land being permanently lost. It slows the overall rate of farmland conversion, both by disincentivizing projects that unnecessarily consume farmland, and by providing resources for farmland conservation. Moreover, the capital that a willing landowner receives for selling an easement on his or her property is sometimes what enables that landowner to keep farming. In short, while easements do not create new farmland, they make a meaningful, cumulative contribution to protecting agricultural resources.

This contribution is all the more important given the anticipated impacts of groundwater depletion and Sustainable Groundwater Management Act (SGMA) implementation. A recent study estimates that 500,000 acres of irrigated cropland in the San Joaquin Valley will be converted to less water-intensive uses in the coming decades.⁶ Far from being a reason not to establish conservation easements, as the DSREIR speculates,⁷ a reduction in the amount of viable farmland, coupled with a growing population, will make it essential to conserve as much as possible of what remains.

For these reasons, we respectfully request that the County amend the DSREIR to require all feasible mitigation measures for impacts to farmland and rangeland, including but not limited to Mitigation Measure 4.2-1 and the additional measures suggested in our 2015 and 2018

³ *King and Gardiner Farms, LLC v. County of Kern et al.* (2020), 45 Cal.App.5th 814, 875.

⁴ DSREIR, 4.2-29 – 4.2-30.

⁵ *Sierra Club v. County of Fresno* (2018), 6 Cal.5th 502, 524-25, citing *City of San Diego v. Board of Trustees of California State University* (2015), 61 Cal.4th 945, 967.

⁶ See Hanak, E., Escrivá-Bou, A., Gray, B., Green, S., Harter, T., Jezdimirovic, J., Lund, J., Medellín-Azuara, J., Moyle, P., and Seavy, N. 2019. Water and the Future of the San Joaquin Valley. Available at <https://www.ppic.org/publication/water-and-the-future-of-the-san-joaquin-valley/>.

⁷ DSREIR, 4.2-30.

comments.⁸ We appreciate the opportunity to participate in this process and look forward to your response.

Sincerely,



Cam Tredennick
Executive Director
Sequoia Riverlands Trust

⁸ SRT comment letters submitted August 31, 2015 and October 4, 2018.

0027-1

Thank you for your comments and participation in the public review of the Project and the environmental document. These comments are noted and will be considered by County decisionmakers. The comment references previous comment letters submitted on the 2015 Draft EIR, the 2018 SEIR, and the SREIR (August 2020). The comment also states that the SREIR (October 2020) includes no additional mitigation measures for farmland loss and specifically rules out conservation easements.

Please see Responses to Comments 0004-1 through 0004-5 regarding the referenced prior comment letters and mitigation for impacts to farmland. The SREIR (October 2020) includes additional mitigation measures for farmland in new MM 4.2-1. MM 4.2-1 provides mitigation for conversion of defined agricultural land by capping disturbance for each individual well, dependent on location within defined Subareas: Western – 2.0 acres, Central – 3.0 acres, and Eastern – 1.2 acres; requiring removal of legacy oil and gas equipment that is within the applicant’s control on the same parcel of agricultural land; and prohibiting siting and construction of new disposal ponds on such lands. See SREIR (October 2020), Vol. 1, at 4.2-31. The SREIR (October 2020) rules out conservation easements in response to the Court of Appeal’s decision regarding the ineffectiveness of conservation easements as CEQA mitigation. See SREIR (October 2020), Vol. 1, at 4.2-29–30 and Response to Comment 0004-2; see also *King & Gardiner Farms, LLC v. County of Kern* (2020) Case No. F077656, Slip Opinion, (Cal. Ct. App. 5th Dist. Feb. 25, 2020).

0027-2

Thank you for your comments and participation in the public review of the Project and the environmental document. These comments are noted and will be considered by County decisionmakers. Please see Response to Comment 0027-1.

28

Kristine Andarmani

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Cindi Hoover

From: Kristine Andarmani <k_andarmani@yahoo.com>
Sent: Friday, December 11, 2020 7:33 PM
To: Cindi Hoover
Subject: Please Stop Oil and Gas Expansion in Kern County, California.

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Dear Cindi:

I strongly urge you to reject the ordinance that would fast track the approval of 67,000 new oil and gas wells in Kern County. This would increase toxic air pollution that would exacerbate existing health harms.

It is a fact that exposure to air pollution is correlated with an increased risk of contracting and dying from COVID-19. As you know, there are 78,000 oil wells in Kern County. Bringing more oil wells into this county will worsen health outcomes for communities disproportionately affected by the pandemic, including the elderly, people with disabilities, people of color, and low-income families.

It would encourage oil and gas operators to reuse their wastewater for irrigation and other uses, which could increase health risks.

Kern County must institute a minimum setback of 2,500 feet to protect people in homes, schools, playgrounds, and other sensitive locations from nearby drilling, and take other affirmative steps to reduce the harmful impacts of drilling on Kern residents.

The health and safety of people in these communities must be your top priority. Please reject the ordinance that would fast track the approval of 67,000 new oil and gas wells in Kern County.

I am counting on you to put the needs of people in Kern County above those of greedy oil and gas developers. Thank you for your time and urgent attention to this matter.

Kristine Andarmani
Concerned Citizen

0028-1

0028-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

29

Riddhi S. Patel

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Cindi Hoover

From: riddhipatel1011@gmail.com
Sent: Monday, December 14, 2020 7:54 AM
To: Cindi Hoover
Subject: Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County. This ordinance, “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting,” if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate. Kern County is already home to about 80 percent of California’s oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

Riddhi S. Patel

Sent from my iPhone

0029-1

0029-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

30

Ray McPherson

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Cindi Hoover

From: Ray McPherson <8rayray8@gmail.com>
Sent: Monday, December 14, 2020 7:41 AM
To: Cindi Hoover
Subject: Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County. This ordinance, “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting,” if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate. Kern County is already home to about 80 percent of California’s oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

Ray McPherson

0030-1

0030-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

31 Fabiola Orozco

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Cindi Hoover

From: fabiolaorozco1994@gmail.com
Sent: Sunday, December 13, 2020 4:59 PM
To: Cindi Hoover
Subject: *Public Comment* Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Hello,

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County. This ordinance, "Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting," if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate. Kern County is already home to about 80 percent of California's oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

Thank you,
Community youth volunteer
Fabiola Orozco

0031-1

0031-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

32 Amberleen Deleon MPH(c), HACP

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Cindi Hoover

From: Amberleen Deleon <amberleen.deleon@simmons.edu>
Sent: Sunday, December 13, 2020 3:29 PM
To: Cindi Hoover
Subject: Statement on oil and gas ordinance

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Dear Ms. Cindi Hoover --

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County.

This ordinance, “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting,” if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate.

Kern County is already home to about 80 percent of California's oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

I hope you would consider this statement and emphasize the environmental, social, and health implications that this poses on the residents of Kern County. This has the opportunity to negatively impact the community.

Thank you,

Amberleen Deleon MPH(c), HACP
 MPH Candidate in Health Equity
 Simmons University | Boston, MA

0032-1

0032-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

33

Eliza Nemser, PhD

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Cindi Hoover

From: Eliza Nemser <eliza@climatechangemakers.org>
Sent: Sunday, December 13, 2020 2:38 PM
To: Cindi Hoover
Subject: Comment on the Draft SREIR (October 2020)

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Ms. Hoover,

RE: Draft Supplemental Recirculated Environmental Impact Report (October 2020) for Revisions to Title 19-Kern County Zoning Ordinance 2020 (A), Focused on Oil and Gas Local Permitting (SCD #2013081079)

I am writing to urge you to recommend the above named project for denial to the Kern County Board of Supervisors. The proposed expansion of oil and gas production wells would nearly double the number of current production wells in the county at a time when California, the US, and the world need to be transitioning to a clean energy future.

Bringing more oil wells into Kern County could worsen health outcomes for communities disproportionately affected by the pandemic: the elderly, disabled people, people of color and low-income families. It would increase toxic air pollution that would exacerbate existing health harms and encourage oil and gas operators to reuse their wastewater for irrigation and other uses, which could also increase health risks.

Now is the time for a just transition to a clean energy economy, retraining oil and gas workers, moving them to good union jobs, and improving public health. This project should not move forward.

Sincerely,

Eliza Nemser
 San Francisco, CA

Eliza Nemser, PhD
 Co-founder, [Climate Changemakers](https://climatechangemakers.org/)

0033-1

0033-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

34 Madeline Dyke

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Cindi Hoover

From: Dyke, Madeline <mmd7@williams.edu>
Sent: Sunday, December 13, 2020 2:36 PM
To: Cindi Hoover
Subject: Comment on the Draft SREIR (October 2020)

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Ms. Hoover,

RE: Draft Supplemental Recirculated Environmental Impact Report (October 2020) for Revisions to Title 19-Kern County Zoning Ordinance 2020 (A), Focused on Oil and Gas Local Permitting (SCD #2013081079)

I am writing to urge you to recommend the above named project for denial to the Kern County Board of Supervisors. The proposed expansion of oil and gas production wells would nearly double the number of current production wells in the county at a time when California, the US, and the world need to be transitioning to a clean energy future.

Bringing more oil wells into Kern County could worsen health outcomes for communities disproportionately affected by the pandemic: the elderly, disabled people, people of color and low-income families. It would increase toxic air pollution that would exacerbate existing health harms and encourage oil and gas operators to reuse their wastewater for irrigation and other uses, which could also increase health risks.

Now is the time for a just transition to a clean energy economy, retraining oil and gas workers, moving them to good union jobs, and improving public health. This project should not move forward.

Nearly **doubling** the number of production wells in the county that's responsible for ~80% of CA's oil and gas production is simply incompatible with the current scientific consensus. Please, please, please do not be complicit as the oil and gas industry condemns my generation to a bleak future. I would like to have children someday.

Sincerely,

Madeline
 Berkeley, CA.

0034-1

0034-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and a request that the Board of Supervisors support a “Just Transition Plan” for fossil fuel workers. These comments will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

35

Stuart Powell

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Cindi Hoover

From: Stuart Powell <swpowell89@gmail.com>
Sent: Sunday, December 13, 2020 2:29 PM
To: Cindi Hoover
Subject: Comment on the Draft SREIR (October 2020)

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Ms. Hoover,

RE: Draft Supplemental Recirculated Environmental Impact Report (October 2020) for Revisions to Title 19-Kern County Zoning Ordinance 2020 (A), Focused on Oil and Gas Local Permitting (SCD #2013081079)

I am writing to urge you to recommend the above named project for **denial** to the Kern County Board of Supervisors. The proposed expansion of oil and gas production wells would nearly **double the number of current production wells** in the county at a time when California, the US, and the world need to be transitioning to a clean energy future.

Bringing more oil wells into Kern County could **worsen health outcomes** for communities disproportionately affected by the pandemic: the elderly, disabled people, people of color and low-income families. It would increase **toxic air pollution** that would exacerbate existing health harms and encourage oil and gas operators to reuse their wastewater for irrigation and other uses, which could also increase health risks.

Now is the time for a just transition to a clean energy economy, retraining oil and gas workers, moving them to good union jobs, and improving public health. **This project should NOT move forward.**

Sincerely,

Stuart Powell
 Raleigh, NC

0035-1

0035-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and a request that the Board of Supervisors support a “Just Transition Plan” for fossil fuel workers. These comments will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

36

Rebecca Johnson

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Cindi Hoover

From: Becky Johnson <rjohn30802@gmail.com>
Sent: Sunday, December 13, 2020 2:27 PM
To: Cindi Hoover
Subject: Comment on the Draft SREIR (October 2020)

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Ms. Hoover,

RE: Draft Supplemental Recirculated Environmental Impact Report (October 2020) for Revisions to Title 19-Kern County Zoning Ordinance 2020 (A), Focused on Oil and Gas Local Permitting (SCD #2013081079)

I am writing to urge you to recommend the above named project for denial to the Kern County Board of Supervisors. The proposed expansion of oil and gas production wells would nearly double the number of current production wells in the county at a time when California, the US, and the world need to be transitioning to a clean energy future.

Bringing more oil wells into Kern County could worsen health outcomes for communities disproportionately affected by the pandemic: the elderly, disabled people, people of color and low-income families. It would increase toxic air pollution that would exacerbate existing health harms and encourage oil and gas operators to reuse their wastewater for irrigation and other uses, which could also increase health risks.

Now is the time for a just transition to a clean energy economy, retraining oil and gas workers, moving them to good union jobs, and improving public health. This project should not move forward.

Sincerely,
Rebecca Johnson
Oakland, California

0036-1

0036-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and a request that the Board of Supervisors support a “Just Transition Plan” for fossil fuel workers. These comments will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

37

Kai Cash

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Cindi Hoover

From: Kai Cash <livelikekai@gmail.com>
Sent: Sunday, December 13, 2020 2:26 PM
To: Cindi Hoover
Subject: Comment on the Draft SREIR (October 2020)

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Ms. Hoover,

RE: Draft Supplemental Recirculated Environmental Impact Report (October 2020) for Revisions to Title 19- Kern County Zoning Ordinance 2020 (A), Focused on Oil and Gas Local Permitting (SCD #2013081079)

I am writing to urge you to recommend the above named project for denial to the Kern County Board of Supervisors. The proposed expansion of oil and gas production wells would nearly double the number of current production wells in the county at a time when California, the US, and the world need to be transitioning to a clean energy future.

Deadly wildfires continue to ravage many parts of California, coastal cities like Miami have experienced extreme flooding due to rising sea levels, and while evidence suggests that global warming will not necessarily cause more hurricanes, Hurricane Dorian, which caused an estimated 4.6 billion dollars in damages, shows that hurricanes that do happen will be much stronger.

To avoid the worst impacts of climate change, the global community must cut greenhouse gas pollution approximately in half by 2030, and achieve global net-zero pollution by mid-century, according to a 2018 report from the Intergovernmental Panel on Climate Change (IPCC).

Projects like these suppose that they can afford to focus on other issues but evidence shows that we (particularly the most vulnerable communities) cannot afford to wait any longer to build resiliency structures to mitigate and adapt to the effects of climate change.

Bringing more oil wells into Kern County could worsen health outcomes for communities disproportionately affected by the pandemic: the elderly, disabled people, people of color and low-income families. It would increase toxic air pollution that would exacerbate existing health harms and encourage oil and gas operators to reuse their wastewater for irrigation and other uses, which could also increase health risks.

Now is the time for a just transition to a clean energy economy, retraining oil and gas workers, moving them to good union jobs, and improving public health. This project should not move forward.

Sincerely,

0037-1

Kai Cash

0037-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and a request that the Board of Supervisors support a “Just Transition Plan” for fossil fuel workers. These comments will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

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38

Michael Chang

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Cindi Hoover

From: Michael Chang <aznm1ke31@gmail.com>
Sent: Sunday, December 13, 2020 2:24 PM
To: Cindi Hoover
Subject: Please Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Dear Ms. Hoover,

RE: Draft Supplemental Recirculated Environmental Impact Report (October 2020) for Revisions to Title 19-Kern County Zoning Ordinance 2020 (A), Focused on Oil and Gas Local Permitting (SCD #2013081079)

I am writing to urge you to recommend the above named project for denial to the Kern County Board of Supervisors. The proposed expansion of oil and gas production wells would nearly **double** the number of current production wells in the county at a time when California, the US, and the world need to be transitioning to a clean energy future to fend off the climate emergency.

Bringing more oil wells into Kern County could worsen health outcomes for communities disproportionately affected by the pandemic: the elderly, disabled people, people of color and low-income families. It would increase toxic air pollution that would exacerbate existing health harms and encourage oil and gas operators to reuse their wastewater for irrigation and other uses, which could also increase health risks.

Now is the time for a just transition to a clean energy economy, retraining oil and gas workers, moving them to good union jobs, and improving public health. Please prevent this project from moving forward.

Sincerely,

Michael Chang
Brooklyn, New York

0038-1

0038-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and a request that the Board of Supervisors support a “Just Transition Plan” for fossil fuel workers. These comments will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

39 Brandon Martin, Esq.

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THE LAW OFFICE OF
BRANDON MARTIN

A PROFESSIONAL CORPORATION

ATTORNEY-AT-LAW:
BRANDON MARTIN

1430 TRUXTUN AVENUE, FIFTH FLOOR
BAKERSFIELD, CALIFORNIA 93301
WWW.BRANDONMARTINLAW.COM

TELEPHONE: 661/665-6090
FACSIMILE: 661/825-8900

December 14, 2020

Via E-mail

hooverc@kerncounty.com

Kern County Planning and Natural Resources Department
ATTN: Cindi Hoover, Lead Planner
2700 "M" Street, Suite 100
Bakersfield, CA 93301

Re: Comment on Draft Supplemental Recirculated EIR for Revisions to Title 19 --
Kern County Zoning Ordinance Focused on Oil and Gas Local Permitting

Dear Lead Planner Cindi Hoover:

I represent a local committee concerned that certification of the above-mentioned Draft EIR in its present form will result in future harm to our environment. We also believe the approach frustrates planning objectives and business interests for owners of interests in "split estates" and fails to address serious "legacy" concerns with abandoned wells and old inactive oil production infrastructure on active agricultural property.

We request that your Final EIR specifically address the decision to proceed as a Project EIR rather than a Program EIR. While we understand the streamlining benefits of the decision to prepare this document as a Project, we believe this is a decision to opt-out of or circumvent CEQA's mandatory environmental review in the future rather than an effort to comply with the purposes of the law. Specifically, the Draft EIR simply does not address environmental impacts with the degree of specificity consistent with the use of a Project EIR as opposed to a Program EIR and improperly fails to provide for supplemental review that may be necessary in the future.

We respectfully request that the public comment period remain open until the close of the hearing for certification of the Draft EIR so that we may provide further feedback.

Sincerely,



Brandon Martin, Esq.
Attorney-at-Law

0039-1

0039-2

0039-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. The comment states that the SREIR frustrates planning objectives and business interests for owners of split estate lands and fails to address legacy oil and gas equipment on active agricultural property.

CEQA Guidelines § 15064(e) provides that “[e]conomic and social changes resulting from a project shall not be treated as significant effects on the environment.” Economic harm to the planning objectives and business interests of split estate landowners is not an environmental impact pursuant to CEQA. However, the Ordinance provides a two-track application review process that significantly enhances the negotiating position of a split estate surface owner relative to the mineral estate owner, compared with existing state law in which the mineral estate is dominant. See SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-111–125 (2015 FEIR GR-4 – Surface Owners and Agriculture) and SREIR (October 2020), Vol. 1, at 4.2-35. The SREIR (October 2020) addresses legacy equipment on agricultural property by adding new MM 4.2-1.B for the impact of conversion of agricultural land, requiring removal of legacy unused oil and gas equipment which is owned by the applicant on the same legal parcel. SREIR (October 2020), Vol. 1, at 4.2-31.

0039-2

The comment requests that the final SREIR specifically address the decision to proceed as a Project rather than a Program EIR.

Please see Global Response (GR) 1 – Beyond the Scope of the SREIR. The 2015 FEIR includes a detailed discussion regarding the decision to proceed as a project. See SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-100 (2015 FEIR GR-2 – Project vs. Program EIR). By conducting a project-level review of the Amended Zoning Ordinance and future development pursuant to the ordinance, the SREIR informs the policy decisions reflected in the Ordinance and allows the County to identify performance standards and mitigation measures that most effectively and efficiently address both the large scale and the localized effects of oil and gas development. The impact analysis was performed on a landscape or regional scale, and the SREIR contains extensive analysis and mitigation measures at the micro scale. The SREIR meets CEQA’s requirements for a project-level review both for the Amended Zoning Ordinance and the development undertaken in the future under the Ordinance. See SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-101 (2015 FEIR GR-2 – Project vs. Program EIR). The SREIR does not require further discussion of this issue. Please see GR-1 and Responses to Comments 0009-98, 0009-104, and 0009-112.

The comment also requests that the comment period remain open until the close of the hearing for certification of the Draft SREIR. As noted in GR-3 – Public Process, the County provided 45-day public comment periods for both circulations of the Draft SREIR (August 2020 and October 2020) and numerous additional opportunities for public participation. Neither CEQA nor the CEQA Guidelines require the extension of public comment periods beyond the 45 days required under CEQA. Please see Responses to Comments 0007-2, 0007-4, 0007-6, and GR-3.

40

Pedro Hernández

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Cindi Hoover

From: Hernandez, Pedro <pedro.hernandez@audubon.org>
Sent: Monday, December 14, 2020 4:28 PM
To: Cindi Hoover
Subject: Re: Kern Oil and Gas Expansion Environmental Impact Report

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0040-1

Audubon California urges the Kern County Board of Supervisors to hold ecosystem and community health at the forefront any fossil fuel developing that takes place. The proposed blanket analysis for the Kern Oil and Gas Expansion Environmental Impact Report is inadequate and would leave frontline communities and the ecosystems they inhabit at risk for adverse impacts for the near and long term. As a result, we encourage the Kern County Supervisors to institute a minimum 2,500-foot setback to protect homes, schools, and other sensitive locations from nearby drilling, and take other affirmative steps to reduce the harmful impacts of drilling on Kern residents and their environments.

Pedro Hernández
Outreach and Engagement Manager – Climate Policies
Audubon California

Pedro Hernández
Outreach and Engagement Manager – Climate Policies
559.816.5303

Audubon California
455 Capitol Mall, Suite 415
Sacramento, CA 95814
ca.audubon.org

0040-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

41

Suzanne and David Harbster

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Cindi Hoover

From: suzhiker@aol.com
Sent: Monday, December 14, 2020 10:41 AM
To: Cindi Hoover
Cc: christine.harbster@gmail.com
Subject: Kern County Oil Expansion

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

My husband and I found out about this issue from our daughter who lives in California. This is a blatant disregard of the welfare of people living in this area that are already suffering from the effects of environmental racism. Decisions like this have ramifications beyond just California. We need all governors to hold firm for the common good and not give in to business interests that trample human rights.

It is disappointing to see that Governor Newsom has turned his back on the citizens of this county. This will greatly impact the perception of his leadership around the US.

Sincerely,

Suzanne and David Harbster
Concerned residents of AZ

0041-1

0041-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

42

Matthew Renner

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Cindi Hoover

From: Matt Renner <matt@climatemobilization.org>
Sent: Monday, December 14, 2020 8:50 AM
To: Cindi Hoover
Subject: Attn: Cindi Hoover at Kern County Planning

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Hello Kern County Board of Supervisors,

I write today as a parent and as a fellow Californian. This state can and should prioritize the health of our young ones. I urge you to stop toxic oil expansion in our state's central valley. You have the power to do this — and this choice will be your legacy.

The Coronavirus pandemic shows us that the most vulnerable will pay the biggest price in disasters until we start thinking ahead and making sure their lives matter just as much as those who have money and power.

It no longer makes sense to pull oil out of deep wells and burn it into the atmosphere. We have better solutions that don't come with the immediate human toll of local air pollution and the longterm human toll of runaway climate disaster. Let's take all the time and energy that is currently focused on expanding oil drilling and use it to develop local renewable energy projects and industry that will provide family-supporting jobs and a future without so much suffering. Let's take care of our neighbors and our community together.

This is your chance to decide which side you are on. This is your last chance.

Thank you for choosing the side of the people and the flourishing future, not the side of the oil companies.

Sincerely,
Matt Renner
Executive Director, The Climate Mobilization

Matthew Renner
Executive Director, [The Climate Mobilization](#) and [Climate Mobilization Project](#)
Text or call: (510) 517-1343
[Click here to schedule a call with me.](#)

*Climate change is an emergency.
Let's act like it. Let's mobilize.*

0042-1

0042-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

43

Harveen Shergill

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Cindi Hoover

From: Harveen Shergill <harveen.kaur.shergill@gmail.com>
Sent: Monday, December 14, 2020 9:32 AM
To: Cindi Hoover
Subject: Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

0043-1

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County. This ordinance, “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting,” if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate. Kern County is already home to about 80 percent of California’s oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

0043-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

44

Sandra Reding

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Cindi Hoover

From: S Reding <miracleornurse@gmail.com>
Sent: Monday, December 14, 2020 11:29 AM
To: Cindi Hoover
Subject: Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County. This ordinance, “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting,” if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate. Kern County is already home to about 80 percent of California’s oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

Sandra Reding

0044-1

0044-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

45

Miguel Ceja

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Cindi Hoover

From: Miguel Ceja <miguelangelceja@yahoo.com>
Sent: Monday, December 14, 2020 12:58 PM
To: Cindi Hoover
Subject: Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County. This ordinance, “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting,” if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate. Kern County is already home to about 80 percent of California’s oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

Sincerely,

Miguel A. Ceja

0045-1

0045-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

46

Tina Devon Gallier – 350 Sacramento

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Cindi Hoover

From: Tina Gallier <gallierhome@hotmail.com>
Sent: Monday, December 14, 2020 1:19 PM
To: Cindi Hoover
Subject: Proposed ordinance for new oil and gas wells

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Dear Ms. Hoover,

On behalf of 350 Sacramento, a climate group with over 2,500 supporters, I would like to register opposition to the 67,000 new oil and gas wells proposed for Kern County. We support the #StandWithKern Campaign in their effort to block the ordinance authorizing these new wells.

It is already obvious that some of the worst effects of climate change are occurring here in California. Devastating and apocalyptic wildfires that are happening not once very few years or decades, but nearly every year. Record-shattering heat, such as the 130 degrees registered in Death Valley and 120 degrees in San Luis Obispo. We believe that no new drilling permits should be issued anywhere in California, if nothing else, for the sake our own survival.

We are deeply concerned that California is becoming unlivable and that vulnerable communities are being exposed to toxic pollution from oil and gas wells. The Kern County Board of Supervisors must not approve this ordinance.

Thank you,

Tina Devon Gallier
Board Member
350 Sacramento

0046-1

0046-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decision makers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance. The comment states that effects of climate change are occurring in California, including wildfire and extreme heat.

Please see Global Response (GR) 1 – Beyond the Scope of the SREIR. Climate change and its indirect impacts is not one of the five topics required to be addressed in the SREIR. Please also see Response to Comment 0009-98 explaining what constitutes new or significant information under CEQA. The 2015 FEIR contains an extensive discussion of climate change, including the trend of rising temperatures and increasing wildfires, heat waves, and floods. See SREIR (October 2020), Vol. 3, Section 4.7, Greenhouse Gas Emissions and Global Climate Change. The comment does not raise any issue that is significant new information, because climate change and its indirect effects were known and addressed in the 2015 FEIR. See *Concerned Dublin Citizens v City of Dublin* (2013) 214 Cal.App.4th 1301 (the adoption of new guidelines for evaluation of greenhouse gas emissions was not significant new information requiring further CEQA review because information about the potential effects of those emissions was known and could have been addressed in connection with the certification of the original EIR). The 2015 FEIR contains a thorough discussion of the issues raised in this comment concerning continued climate change and its effects.

The comment also states that vulnerable communities are being exposed to pollution from oil and gas wells. Please see GR-4 – Environmental Justice. An analysis of the Kern County census tract five-year American Community Survey demographic and poverty data, conducted for informational purposes only, shows that the vast majority of wells proposed under the Ordinance are anticipated to be located in areas with a higher proportion of white residents and a lower poverty rate than the County as a whole. The results indicate that the activities allowed under the Ordinance do not appear to be spatially distributed in a manner that disproportionately focuses future oil and gas environmental impacts on sensitive populations. See SREIR (October 2020), Vol. 1, at 6-39–42; see also Responses to Comments 0010-3, 0010-4, and 0010-5.

47

Felix Colson

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Cindi Hoover

From: Felix Colson <felixcolson1@gmail.com>
Sent: Monday, December 14, 2020 2:30 PM
To: Cindi Hoover
Subject: Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

As a Kern County resident,

I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County. This ordinance, “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting,” if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate. Kern County is already home to about 80 percent of California’s oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

Thank you,
Felix Colson

0047-1

0047-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

48 Rosanai Paniagua

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Cindi Hoover

From: Rosanai Paniagua <anai@loudfor.org>
Sent: Monday, December 14, 2020 3:22 PM
To: Cindi Hoover
Subject: Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County. This ordinance, “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting,” if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate. Kern County is already home to about 80 percent of California’s oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

0048-1

0048-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

49

Alexis Hernandez

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Cindi Hoover

From: ALEXIS HERNANDEZ <alexishernandez529@yahoo.com>
Sent: Monday, December 14, 2020 4:12 PM
To: Cindi Hoover
Subject: Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County. This ordinance, "Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting," if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate. Kern County is already home to about 80 percent of California's oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

0049-1

Sent from my iPhone

0049-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

50

Elizabeth Spavento

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Cindi Hoover

From: Elizabeth Spavento <espavento@gmail.com>
Sent: Monday, December 14, 2020 4:12 PM
To: District1; district2; district4; district5; Cindi Hoover
Cc: district3
Subject: Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting
Attachments: IMG_3090.MOV

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County.

This ordinance, “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting,” if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate.

Kern County is already home to about 80 percent of California’s oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

Attached is a video I took today of the oil fields just beyond panorama drive here in Kern county just a few feet away from the Kern river. Building more wells does not secure a sustainable future for future generations. We need actions that support clean energy in our communities because it determines our access to clean water and air.

Elizabeth Spavento

--

Elizabeth Spavento
 cell: (716) 861-1688

Border Patrol Co-Director
www.border-patrol.net
 Follow @borderpatrolmaine

0050-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

51 Steven Porfiri

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Cindi Hoover

From: Steven Porfiri <porfiristeven@gmail.com>
Sent: Monday, December 14, 2020 4:23 PM
To: Cindi Hoover
Subject: Reject The Oil and Gas Permitting Ordinance

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Hello,

As a Kern County resident, I'm calling for the rejection of the ordinance, "Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting". If approved, this ordinance will allow the oil and gas industry to continue to profit at the expense of public health and the climate and will be a massive expansion of oil and gas production in Kern County by fast-tracking the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County.

Kern County is already home to about 80 percent of California's oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years while massively expanding the number of oil and gas wells is unacceptable.

Steven Porfiri

0051-1

0051-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

52

Elizabeth Perez

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Cindi Hoover

From: elizabeth perez <perez.elizabeth1994@gmail.com>
Sent: Monday, December 14, 2020 4:42 PM
To: Cindi Hoover
Subject: Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

0052-1

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County. This ordinance, “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting,” if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate. Kern County is already home to about 80 percent of California’s oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

Sincerely,
Elizabeth

0052-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

53

Alejandro Jurado

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Cindi Hoover

From: Alejandro Jurado <ajurado@yli.org>
Sent: Monday, December 14, 2020 4:49 PM
To: Cindi Hoover
Subject: Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Hi my name is Alejandro Jurado. As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County. This ordinance, “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting,” if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate. Kern County is already home to about 80 percent of California’s oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

0053-1

0053-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

54 Jessa fate Bayudan

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Cindi Hoover

From: Jessa fate Bayudan <bayudanjessafate@yahoo.com>
Sent: Monday, December 14, 2020 4:47 PM
To: Cindi Hoover
Subject: Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County. This ordinance, "Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting," if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate. Kern County is already home to about 80 percent of California's oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

0054-1

Sent from my iPhone

0054-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

55

Marco

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Cindi Hoover

From: marcofootball40@gmail.com
Sent: Monday, December 14, 2020 5:00 PM
To: Cindi Hoover
Subject: Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County. This ordinance, "Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting," if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate. Kern County is already home to about 80 percent of California's oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

0055-1

Sent from my iPhone

0055-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

56 Stephanie Valenzuela

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Cindi Hoover

From: Stephanie Valenzuela <stephav08@gmail.com>
Sent: Monday, December 14, 2020 5:02 PM
To: Cindi Hoover
Subject: Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

0056-1

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County. This ordinance, “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting,” if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate. Kern County is already home to about 80 percent of California’s oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

The fact that I’ve not heard about this anywhere but from friends in the know — also unacceptable!

0056-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

57

Christine Harbster

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Cindi Hoover

From: Harbster, Christine <CHarbster@law.cwsl.edu>
Sent: Monday, December 14, 2020 7:01 PM
To: Cindi Hoover
Subject: Concerned California Patriot

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Hello,

I am incredibly concerned about the future impact of this upcoming zoning revision that is willfully and knowingly defying reason and science. Bakersfield is already one of the most polluted areas of the country and adding more gas and oil permits seems counterintuitive to our great state's purpose to be a global leader in combatting climate change.

Kern County should be tackling climate change not adding to it.

I urge you not to allow this revision.

Sincerely,

Christine Harbster
Juris Doctor Candidate 2022
California Western School of Law

0057-1

0057-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

58 Rosanai Paniagua

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Cindi Hoover

From: Rosanai Paniagua <ropaniag@ucsc.edu>
Sent: Monday, December 14, 2020 3:40 PM
To: Cindi Hoover
Subject: Stop Oil & Gas Expansion in California's Central Valley

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

As a Kern County resident, I call on you to stop the planned massive expansion of oil and gas production in Kern County. The oil industry has promoted a proposed oil and gas ordinance that would fast-track the permitting of more than 67,000 new oil and gas wells over the next 20 years – a near-doubling of the 78,000 wells that are already operating in the County. This ordinance, “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting,” if approved, will allow the oil and gas industry to continue to profit at the expense of public health and the climate. Kern County is already home to about 80 percent of California’s oil and gas production. People in low-income communities and communities of color are more likely to live and work near oil extraction facilities, and they already suffer pollution-related health problems at disproportionate levels. Massively expanding the number of oil and gas wells and denying residents the meaningful opportunity to decide whether additional wells should be drilled near their homes and schools for the next 20 years is unacceptable.

0058-1

Sent from my iPhone

0058-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

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December 14, 2020

Via Electronic Mail Only

Ms. Cindi Hoover
Lead Planner
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Resources Department
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Re: October 2020 Draft Supplemental Recirculated Environmental
Impact Report for Revisions to the Kern County Zoning Ordinance –
2020 A, focused on Oil and Gas Local Permitting

Dear Ms. Hoover:

On behalf of King and Gardiner Farms, LLC, we have reviewed the October 2020 draft Supplemental Recirculated Environmental Impact Report ("Oct. DSREIR") prepared in connection with a project entitled "Revisions to Title-19 Kern County Zoning Ordinance – 2020 A, Focused on Oil and Gas Local Permitting" ("Ordinance" or "Project"). This is the second recirculated draft SREIR that the County has prepared in response to the Court of Appeal's decision finding significant flaws with the original environmental impact report ("EIR") for this Project (*see King and Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814). After the trial court entered a judgment directing the County to substantially revise its environmental analysis, the County circulated a draft SREIR in August 2020 ("Aug. DSREIR"). We provided comments on the August DSREIR, alerting the County to its failure to correct the errors identified by the Court of Appeal or to meet the most basic requirements of the California Environmental Quality Act ("CEQA"), Public Resources Code § 21000 et seq., and the CEQA Guidelines, California Code of Regulations, title 14, § 15000 et seq.

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(“Guidelines”). *See* Letter dated Sept. 16, 2020 from SMW to Cindi Hoover (“SMW Sept. Comments”).¹

Following the close of the public comment period for the August DSREIR, the County announced its intention to “revise and recirculate the Draft [SREIR] for another 45-day comment period.” Letter dated Oct. 9, 2020 from Lorelei Oviatt, Director of Kern County Planning and Natural Resources Department. This second effort culminated in the October DSREIR, which we have once again carefully reviewed for its sufficiency under the law. While we appreciate the revisions and updates the County has made to this latest draft of the document, there are still a number of concerning legal and factual inadequacies that need to be rectified.

In particular, the October DSREIR fails to (1) provide effective mitigation for the Project’s significant impacts on agricultural land conversions; (2) fully mitigate the Project’s significant noise impacts; or (3) correct the errors in the County’s Cumulative Health Risk Assessment (“CHRA”) and provide adequate mitigation to ensure compliance with the CHRA’s assumptions. The County’s continuing refusal to provide the corrected analyses not only contravenes the court’s judgment in this case, but also undermines CEQA’s core purposes: to inform decisionmakers and the public regarding the environmental consequences of its decision to reapprove the Project, and to reduce or avoid those consequences to the extent feasible.

We submit with this letter our proposed revisions to the County’s MM 4.2-1 (NEW). *See* Exhibit DSREIR 4, attached. In addition, we submit the following technical reports:

J. David Hughes, Comment on Draft Supplemental Recirculated Environmental Impact Report, Revisions to the Kern County Zoning Ordinance – 2020 A (“Hughes Dec. Report”), December 2020, attached as Exhibit DSREIR 5.

Charles M. Salter Associates, Inc., Kern County Zoning Ordinance Revision, Acoustical Comments On Draft Supplemental Recirculated Environmental Impact Report (“Salter Dec. Report”), December 2020, attached as Exhibit DSREIR 6.

¹ We incorporate by reference the SMW Sept. Comments, including all accompanying exhibits, as if fully set forth herein. In addition, to the extent our comments on the 2015 EIR remain applicable, we incorporate by reference this firm’s letters dated September 11, 2015, November 5, 2015, and November 6, 2015, including all exhibits accompanying those letters.

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Phyllis Fox, Comments on the October 2020 Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020 A, focused on Oil and Gas Local Permitting (“Fox Dec. Comments”), December 2020, attached as Exhibit DSREIR 7.

We refer the County to these technical reports, both here and throughout these comments, for further discussion of the October DSREIR’s inadequacies. We request that the County respond not only to the comments set forth in the present letter and the SMW Sept. Comments, but also to the comments presented in the reports attached to those two letters.

I. The October DSREIR Fails to Provide Legally Adequate Mitigation for the Project’s Significant Impacts on Agricultural Lands.

A. Background: the Court of Appeal’s Invalidation of the County’s Agricultural Mitigation and the County’s SREIR.

The Court of Appeal invalidated the County’s original EIR in part for its failure to identify effective mitigation for the Project’s significant impacts on agricultural land conversions. *King and Gardiner Farms*, 45 Cal.App.5th at 870-79. The 2015 EIR had included Mitigation Measure 4.2-1, which contained four measures that purportedly were intended, individually or in combination, to achieve a 1:1 mitigation ratio:

- (a) Funding and/or purchasing agricultural conservation easements.
- (b) Purchasing credits for conservation of agricultural lands from an established agricultural farmland mitigation bank.
- (c) Restoring agricultural lands to productive use through the removal of legacy oil and gas production equipment, including well abandonment and removal of surface equipment.
- (d) Participating in any agricultural land mitigation program adopted by Kern County that provides equal or more effective mitigation.

Id. at 871. The County relied on this mitigation to conclude that the Project’s agricultural impacts had been reduced to a level of insignificance. *Id.* at 872.

The Court of Appeal disagreed with the County’s ultimate conclusion, holding that options (a), (b), and (d) would *not* reduce the Project’s impacts to a level of

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insignificance. *Id.* at 829-30, 872-79. Although the Court approved of option (c) as providing “effective mitigation for the conversion of agricultural land,” *id.* at 876, the ability of oil applicants to select *any* of the mitigation measures led the court to invalidate MM 4.2-1. *Id.* at 878-79. Because of this and other defects, should the County seek to renew the Project, it had to “take the corrective action necessary to bring the EIR and the mitigation measures into compliance with CEQA.” *Id.* at 897.

Yet, rather than taking such corrective action, the County’s August DSREIR completely abandoned any attempt to mitigate the Project’s damage to agricultural lands. The County revoked all four options under MM 4.2-1 and then drew the unsupported conclusion that “there [was] no feasible mitigation” that could reduce impacts to agricultural land. Aug. DSREIR at 4.2-29 to -30, -33. As we explained in our September 2020 comment letter, this analysis did not pass muster under CEQA.

The County has since revisited its approach in the October DSREIR. It now proposes a mitigation measure, identified as “MM 4.2.-1 New,”² aimed at (a) removing legacy oil and gas equipment from farmland, and (b) limiting the acreage of farmland that can be used by each well. Oct. DSREIR at 4.2-31. At the same time, the County continues to defend its misguided interpretation of the appellate court’s agricultural conservation easement analysis, alleging that requiring these easements would provide no mitigatory benefit. *Id.* at 4.2-29 to -30. Further, the County maintains its assertion that requiring clustering of oil and gas operations is not a feasible form of mitigation. *Id.* at 4.2-33 to -40. The County then concludes that, even with its new mitigation measure, the Project’s agricultural impacts will remain significant and unavoidable. *Id.* at 4.2-41.

Under CEQA, a public agency must identify any feasible measure that avoids or substantially lessens a project’s significant environmental impacts. Pub. Resources Code §§ 21002, 21002.1(b). The agency also must assure that its mitigation is “effective” and will “present a viable solution” to mitigating the adverse effect. *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1116. Further, even if a public agency cannot completely eliminate a project’s significant impacts, CEQA requires that it nonetheless reduce them to the extent feasible. *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 524-25 (“*Friant Ranch*”).

Here, the October DSREIR fails to meet these basic CEQA requirements. First, the DSREIR’s proposed new measure lacks quantifiable standards to ensure its efficacy and is fraught with gaping loopholes. Second, the County’s continued rejection of

² We refer hereinafter to this new measure simply as “MM 4.2-1.”

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agricultural conservation easements as partial mitigation conflicts with CEQA and with the Court of Appeal's decision here. Third, no substantial evidence supports the County's wholesale rejection of clustering as infeasible.

B. The County's New Proposed Mitigation Is Legally Inadequate.

While KGF appreciates the County's attempt to restore mitigation addressing the Project's agricultural conversions, MM 4.2-1 suffers from fundamental flaws that render it wholly inadequate.

1. The Proposed Mitigation Measure's Requirement for Removal of Legacy Equipment Is Flawed.

The primary component of County's new mitigation measure, MM 4.2-1(B), prohibits the permitting of new wells on a parcel where the applicant already has legacy unused oil and gas equipment, unless the applicant removes that equipment as a condition of the approved permit. Oct. DSREIR at 4.2-31. MM 4.2-1(B), as drafted, is faulty in three critical ways. We address each of these issues below and, in Exhibit DSREIR 4, suggest revisions to MM 4.2-1(B) to remedy the flaws.

a. The Legacy Equipment Mitigation Measure Fails to Include a Quantifiable Standard.

First, the County's new mitigation lacks any quantifiable standard to ensure its effectiveness, thereby ignoring the Court of Appeal's explicit direction on this subject. In a separate section of its opinion, the court identified the "restor[ation of] agricultural lands to productive use through the removal of legacy oil and gas production equipment" as a way to "offset" and "fully mitigate[]" the Project's conversion of agricultural land. *King and Gardiner Farms*, 45 Cal.App.5th at 876. In so finding, the court specifically upheld 1:1 restoration of agricultural lands through legacy equipment removal as a means of ensuring the "net change in the amount of agricultural land would be zero." *Id.* The court further noted that if 1:1 legacy equipment removal "were the sole method authorized, compliance with MM 4.2-1.c would result in no net loss of agricultural land." *Id.*

Despite this clear guidance from the court, the County's new legacy equipment mitigation measure fails to include the all-important 1:1 mitigation ratio. Without this standard—or, indeed, any quantifiable requirement dictating how much legacy equipment must be removed—the mitigation measure cannot guarantee that there will be no net loss of agricultural land from the Project. *See Preserve Wild Santee v. City of Santee* (2012)

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210 Cal.App.4th 260, 281 (invalidating mitigation that failed to “specify performance standards or provide other guidelines”). In fact, this omission effectively ensures that the mitigation will *not* reduce the Project’s impacts to a level of insignificance, despite CEQA’s mandate that the County achieve this result whenever it is feasible to do so. *See, e.g.,* Pub. Resources Code §§ 21002, 21002.1(b); *Gray*, 167 Cal.App.4th at 1116.

In a related omission, the DSREIR fails to disclose the extent, if any, to which its mitigation calling for legacy equipment removal might reduce the Project’s impacts on farmland conversion. The document concedes that “[t]his impact remains significant and unavoidable with the required mitigation in MM 4.2-1” (Oct. DSREIR at 4.2-40), but it makes no attempt to evaluate, or quantify, the efficacy of the measure. The California Supreme Court recently reiterated that an EIR must include facts and analysis to support its conclusions regarding the effect of its mitigation measures. *Friant Ranch*, 6 Cal.5th at 522 (“The EIR must accurately reflect the net health effect of proposed air quality mitigation measures.”), citing *Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497, 514 (“an EIR’s designation of a particular adverse environmental impact as ‘significant’ does not excuse the EIR’s failure to reasonably describe the nature and magnitude of the adverse effect”). In an unpublished portion of its most recent ruling in *Friant Ranch*, the Fifth District took up this same point, emphasizing that an EIR may not rely on “bare conclusions” to support its statements about the efficacy of mitigation. *Sierra Club v. County of Fresno* (Cal. Ct. App., Nov. 24, 2020, No. F079904), slip op. at 15-18.

Fortunately, the County’s omissions can be easily remedied through the addition of language requiring that mitigation occur at a 1:1 ratio. *See* Subsection B(2) of KGF’s proposed revisions to MM 4.2.-1(B), shown in Exhibit DSREIR 4. The inclusion of this standard will ensure that farmland conversion impacts are reduced to a level of insignificance, and that the County quantifies those reductions as CEQA requires. We also request that the County disclose the amount of legacy equipment located on farmland in the Project area. This information will enable members of the public and decisionmakers to assess the extent to which MM 4.2-1 will actually preserve farmland.

The restoration of agricultural land through legacy equipment removal offers the chance to put farmland back into production and to eliminate hazardous equipment that is not serving the County, its citizens, or even the oil and gas companies. The County’s inclusion of a 1:1 standard not only will allow for full mitigation of the Project’s significant agricultural impacts, but also will align with the court’s analysis of meaningful legacy equipment removal. *See King and Gardiner Farms*, 45 Cal.App.5th at 876.

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b. The Legacy Equipment Mitigation Measure Contains Loopholes that Would Render the Mitigation Ineffective.

Unfortunately, even if the County had included a 1:1 mitigation standard in its proposed legacy equipment mitigation, the measure still would not achieve meaningful mitigation. As currently drafted, the County's mitigation would not be effective because it allows oil and gas operators to design their applications in a manner that avoids this requirement entirely. To ensure the efficacy of its mitigation, the County must close the loopholes in its measure.

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i. The Same Parcel Loophole.

First, MM 4.2-1(B) suffers from a large loophole based on parcel location. As drafted, removal of legacy equipment is required only if the applicant has "legacy unused oil and gas equipment *on the same legal parcel.*" Oct. DSREIR at 4.2-31 (emphasis added). Accordingly, an applicant would need only to move its proposed project to a previously untouched neighboring parcel to avoid all legacy equipment removal requirements. Given that the minimum parcel size for farmland in Kern County is only 20 acres, it would be very easy for the applicant to "move over" a parcel and carry out its activities on the untouched acres. This scenario is particularly likely because, as the Hughes Report shows, mineral leases in Kern County are generally larger than the overlying surface parcels (Hughes Dec. Report at pp. 3-4); thus, mineral rights owners can typically exercise their right to drill from multiple surface parcels (*id.* at p. 10). Indeed, the gaping loophole in the County's proposed mitigation would actually incentivize oil and gas companies to spread their activities across many new parcels without ever reducing the amount of legacy equipment in Kern County.

This loophole could be addressed by removing MM 4.2-1(B)'s narrow focus on the specific parcel occupied by the legacy equipment. Instead, the County should adopt a more comprehensive measure that ensures, for every acre of farmland lost as a result of a Project permit issued, the same number of acres will be restored to agricultural use through legacy equipment removal. Specifically, the County should revise its mitigation measure to provide a tiered system such as the following:

- * If the applicant owns legacy equipment on the same parcel, or on the same farm, as the new oil well, the applicant should be required to remove the legacy equipment, on a 1:1 basis.

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* If the applicant does not own legacy equipment on the same parcel or farm, it should be required to remove legacy equipment that it owns from other farmland in the Project area, on a 1:1 basis.

* If the applicant does not own any legacy equipment on farmland in the Project area, then it should be required to contribute to a County fund, or mitigation bank, dedicated to the removal of legacy equipment from farmland in the Project area. Its contribution would be proportional, on a 1:1 basis, to the conversion of farmland resulting from the oil and gas activities authorized by the applicant's permit.

See KGF's proposed revisions to MM 4.2-1(B), shown in Exhibit DSREIR 4.

KGF's revised mitigation has several advantages. To begin with, by focusing on the type of land potentially impacted—"Qualifying Farmland"—KGF's proposal takes a holistic view of agricultural land as a single resource and helps ensure that the Project's impacts on agricultural land are actually mitigated. When combined with the 1:1 standard, the mitigation requirement to restore Qualifying Farmland under sections B(i), B(ii), or B(iii) will guarantee that the County's net number of farmland acres remains unchanged despite the oil and gas activities authorized by the Project.

The tiered mitigation system also offers added flexibility under section B(iv). This provision allows an applicant to pay an in lieu fee to a mitigation bank to offset its conversion of agricultural land. In setting up the mitigation bank, the County would have the opportunity to evaluate and determine the cost of legacy equipment removal and soil remediation per acre. The County could then apply a standard fee amount "according to a set formula," based on the number of acres converted, to any applicant meeting the requirements of section (B)(iv). *San Remo Hotel L.P. v. City and County of San Francisco* (2002) 27 Cal.4th 643, 668-69, 672-73, 679 (upholding in lieu fees as "reasonably related to the impacts" where fees were determined by "a set formula" and "no meaningful government discretion enters into either the imposition or the calculation of the in lieu fee").

ii. The Ownership Loophole.

MM 4.2-1(B) also contains a second loophole: it applies only where the applicant "has," or owns, legacy equipment on the parcel. Oct. DSREIR at 4.2-31. By making the mitigation contingent on whether the applicant itself owns the legacy equipment, the County has opened the door for applicant companies to avoid mitigation by changing the

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legal ownership of the equipment. For instance, an applicant could simply transfer title to the legacy equipment to another company, or even create a shell company for the sole purpose of holding title to the legacy equipment. Once the applicant no longer owns legacy equipment, it would be able to completely avoid the County's proposed mitigation.

This loophole could easily be eliminated with the more precise language we have suggested in subsection B(4) of our proposed revisions to MM 4.2.-1. *See* Exhibit DSREIR 4.

2. The County's Requirement of a Per-Well Acreage Cap Ignores the Potential for Siting Multiple Wells on a Single Well Pad.

The County's new mitigation also includes a second component, MM 4.2-1(A), which establishes a limitation on the acreage that can be used for new wells. Oct. DSREIR at 4.2-31. This limit applies only to certain qualifying farmland, and it differs depending on the subarea involved. *Id.*

KGF has no objection to the acreage limitations as they apply to projects involving a single well on a farm site. We note, however, that this provision does not account for the substantial farmland conservation that could be achieved by siting multiple wells on a single well pad. As the Hughes Report explains, if an applicant is drilling multiple wells from a single well pad on a project site, directional or horizontal drilling will enable it to disturb to far less acreage per-well than 4.2-1(A) allows. Hughes Dec. Report at p. 3; *see* Part I.D, *infra* (discussing clustering). The County's rigid per-well acreage rule ignores this possibility.

C. Agricultural Conservation Easements Are a Feasible Form of Mitigation that the County Should Utilize.

In our August 2020 comment letter, KGF provided extensive discussion as to why the County had misread the Court of Appeal's opinion to say that conservation easements could never be used as mitigation for loss of agricultural land. *See* Aug. DSREIR at 4.2-30. As we explained, the Court of Appeal did not prohibit the use of conservation easements, but instead faulted the County's *finding* that reliance on conservation easements at a 1:1 ratio would reduce agricultural impacts to an insignificant level. *King and Gardiner Farms*, 45 Cal.App.5th at 829-30. The court stated, "[b]ecause the easement does not offset the loss of agricultural land ... the easement does not reduce a project's impact on agricultural land." *Id.* at 875. Thus, conservation easements cannot be

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solely relied upon to conclude that a project's agricultural land conversion impacts will be less than significant.

KGF further clarified that while conservation easements may not entirely eliminate the impacts of agricultural land conversion, they can help reduce them. Indeed, CEQA does not limit mitigation to measures that would entirely avoid a project's environmental impacts; rather, CEQA mitigation includes measures that would “*substantially lessen* the significant environmental effects” of a project. Pub. Resources Code § 21002 (emphasis added). Even if a public agency cannot completely eliminate significant impacts, CEQA requires that it nonetheless must reduce them to the extent feasible. *Sierra Club*, 6 Cal.5th at 524-25 (“Even when a project's benefits outweigh its unmitigated effects, agencies are still required to implement all mitigation measures unless those measures are truly infeasible.”). The CEQA Guidelines thus encourage not only avoidance measures, but also mitigation through minimization, preservation, and other measures. Guidelines § 15370(d)-(e).

Ignoring these authorities, the County continues to cling to its misplaced belief that “it is not possible to reduce a project's impact on agricultural land by requiring a conservation easement because such easements do not offset the loss of agricultural land in whole or in part.” Oct. DSREIR at 4.2-29 to -30. This interpretation of the court's opinion does not hold up—legally or factually. The Court of Appeal recognized the benefits of agricultural easements in “prevent[ing] the future conversion of the agricultural land subject to the easement” when it cited, with approval, to *Citizens for Open Government v. City of Lodi. King and Gardiner Farms*, 45 Cal.App.5th at 873, 875 (citing *Citizens for Open Government v. City of Lodi* (2012) 205 Cal.App.4th 296, 322-23 [finding that agricultural conservation easements “minimize and substantially lessen the significant effects of the proposed project,” even though they do not fully replace the converted land]). Indeed, previous courts have recognized that, like off-site preservation of endangered species' habitat, agricultural conservation easements help to prevent a resource from being entirely used up to the point of extinction. *See, e.g., Masonite Corp. v. County of Mendocino* (2013) 218 Cal.App.4th 230, 238 (“By thus preserving substitute resources, ACEs [agricultural conservation easements] compensate for the loss of farmland within the Guidelines' definition of mitigation. (Guidelines, § 15370(e) [mitigation includes ‘[c]ompensating for the impact by replacing or providing substitute resources or environments’].)”)³

³ As the Court of Appeal noted, the conclusions reached in *Masonite* were not inconsistent with the reasoning the court applied. *King and Gardiner Farms*, 45

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The County further fails to provide any evidence as to why the use of agricultural conservation easements would be infeasible. *See* Pub. Resources Code §§ 21061.1 (defining “feasible”); 21081 (listing findings necessary to reject mitigation measure as infeasible); Guidelines § 15126.4(a). The County acknowledges that “[a] number of jurisdictions such as San Joaquin County, Stanislaus County, and Yolo County, and the Cities of Davis, Livermore, and Stockton, have adopted General or Specific Plan policies or zoning code provisions, as exercises of their police power, that require agricultural conservation easements as a condition of development that converts agricultural land.” Oct. DSREIR at 4.2-30. It then adds, without any explanation or justification, “Kern County has not done so.” *Id.* Tellingly, the County offers no evidence showing that it could not also use its police power to adopt a similar agricultural easement requirement—likely because there are no economic or geographic barriers to the County’s adoption of such a mitigation measure. *Cf. City of Irvine v. County of Orange* (2015) 238 Cal.App.4th 526, 544-46, 556-57 (finding that skyrocketing land and labor costs, as well as onerous regulations, made agricultural conservation easements economically infeasible); *Cherry Valley Pass Acres & Neighbors v. City of Beaumont* (2010) 190 Cal.App.4th 316, 350-51 (agricultural conservation easements infeasible in the face of overwhelming urbanization); *Defend the Bay v. City of Irvine* (2004) 119 Cal.App.4th 1261, 1269-71 (finding off-site agricultural conservation easement mitigation infeasible due to a lack of economic viability and absence of “other comparable land planned for agriculture in the General Plan”).

In reality, there are 582,856 acres of prime farmland in the Project area, 210,957 acres of farmland of statewide importance, and 86,512 acres of unique farmland. Oct. DSREIR at 4.2-8. The agricultural industry is the top employer in Kern County.⁴ In 2017-2018, Kern County was the nation’s leading agricultural county based on a gross

Cal.App.5th at 875, fn. 32. The appellate court here was primarily focused on whether the use of conservation easements supported the County’s finding that agricultural conversion impacts would be less than significant after mitigation, whereas the *Masonite* court examined the legal feasibility of conservation easements as a mitigation measure without addressing the agency’s ultimate findings.

⁴ *See* Statistical Atlas, <https://statisticalatlas.com/county/California/Kern-County/Industries>, accessed on Sept. 11, 2020.

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agricultural value of around \$7.25 billion.⁵ The availability of agricultural land to place into conservation easements and the continuing viability of Kern County's farming industry make this form of mitigation both legally and economically feasible. The County could easily adopt a robust program for conservation easements.

The practical policy benefits of doing so are readily apparent. Conservation easements allow for the preservation of farmland, one of California's most important environmental resources. *See* Civ. Code § 815; Gov. Code § 51220. The California Legislature has recognized that farmland conversions create development pressures that increase the likelihood of further conversion elsewhere (Pub. Resources Code § 10201(b)-(d)), and has identified conservation easements as a vital tool in combating those pressures. Pub. Resources Code §§ 10200 et seq.; Civ. Code § 815. As the Third District Court of Appeal explained in an unpublished opinion, "conservation easements can diminish the development pressures created by the conversion of farmland and can provide important assistance to the public and private sectors in preserving other farmland against the danger of the domino effect created by the project." *South County. Citizens for Responsible Growth v. City of Elk Grove*, (Cal. Ct. App. Feb. 5, 2004, No. C042302) 2004 WL 219789, at *8.

Conservation easements are a widely-used tool to protect farmland not only in the jurisdictions the County acknowledges, but in Kern County itself. For example, Wasco Real Properties I, LLC has granted agricultural conservation easements on over one thousand acres of farmland to the Sequoia Riverlands Trust. *See* Exhibit DSREIR 8 (Deed of Agricultural Conservation Easement Between Wasco Real Properties I, LLC and Sequoia Riverlands Trust re Kern County Parcel No. 072-150-07, recorded on Dec. 9, 2009); Exhibit DSREIR 9 (Deed of Agricultural Conservation Easement Between Wasco Real Properties I, LLC and Sequoia Riverlands Trust re Kern County Parcel Nos. 072-160-10 and 072-160-13, recorded on Dec. 9, 2011). These are just some of the many agricultural conservation easements Sequoia Riverlands Trust holds in Kern County. *See* Letter from Sequoia Riverlands Trust re the August DSREIR, September 1, 2020 at 2 ("...SRT already holds mitigation easements on 15 properties in Kern County, totaling over 4,200 acres."). Thus, even if agricultural conservation easements cannot fully mitigate the Project's conversion of farmland, they can help to lessen the destruction of

⁵ FarmProgress, "Kern holds its top spot as nation's leading agricultural county," Sept. 19, 2018, available at <https://www.farmprogress.com/grapes/kern-holds-its-top-spot-nations-leading-agricultural-county>.

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the County's agricultural resources. CEQA requires that public agencies adopt partial mitigation measures to the extent feasible. *Sierra Club*, 6 Cal.5th at 524-25.

Adopting an agricultural conservation easement mitigation measure would have the added benefit of shoring up the County's legacy equipment removal mitigation. Per the County's analysis, the Project's impacts on agricultural land will "remain[] significant and unavoidable" even with the newly proposed legacy equipment removal requirement. Oct. DSREIR at 4.2-40. As the County acknowledges, "CEQA requires that even significant and unavoidable impacts must be mitigated to the extent feasible." *Id.* at 4.2-30. The County therefore has a duty under CEQA to adopt all feasible mitigation, especially where a chosen mitigation measure is not believed to mitigate the Project's impacts to less-than-significant. While KGF believes that our proposed revisions to the County's legacy equipment measure have the potential to mitigate the Project's impacts to a less-than-significant level (*see* Part I.B, *supra*), we cannot determine whether this is actually possible because the County has not provided any information about how much legacy equipment needs to be removed from Tier 2 farmland. If new Project-related activities outstrip the amount of legacy equipment on qualifying farmland, additional mitigation will be needed to lessen the Project's farmland conversions. Agricultural conservation easements offer a feasible way to potentially bridge this gap.

In sum, the October DSREIR fails to provide substantial evidence showing that agricultural conservation easements are legally, economically, or environmentally infeasible. *See* Pub. Resources Code §§ 21061.1 (defining "feasible"); 21081 (listing findings necessary to reject mitigation measure as infeasible); Guidelines § 15126.4(a); *San Franciscans for Livable Neighborhoods v. City & County of San Francisco* (2018) 26 Cal.App.5th 596, 636. "To categorically exclude ACEs as a means to mitigate the conversion of farmland would be contrary to one of CEQA's important purposes ACEs should not 'be removed from agencies' toolboxes as available mitigation' for this environmental impact." *Masonite*, 218 Cal.App.4th at 241. Accordingly, the County must revise its October DSREIR to restore and strengthen MM 4.2-1(a).

D. No Substantial Evidence Supports the County's Refusal to Require Clustering Where Feasible.

In requiring the County to reconsider its agricultural conversion mitigation and findings, the Court of Appeal specifically found that "the EIR should have addressed other proposed mitigation measures, including the clustering of wells when feasible." *See King and Gardiner Farms*, 45 Cal. App.5th at 829-30. Clustering refers to the mitigation KGF and other farmers proposed in comments on the 2015 EIR, which would require operators to group together future oil infrastructure sited on farmland. *Id.* at 879.

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In its October DSREIR, the County concludes that clustering is entirely infeasible. Oct. DSREIR at 4.2-33 to -34 (“Mitigation that would require wells to be clustered or grouped on agricultural lands in all instances, regardless of the preference of individual surface and mineral owners, is not reasonable or feasible.”). In fact, no substantial evidence supports this categorical position. Not only are directional and horizontal drilling feasible, they “have become the norm in Kern County over the past decade.” J. David Hughes, Comment on Draft Supplemental Recirculated Environmental Impact Report, Revisions to the Kern County Zoning Ordinance – 2020 A, September 2020 (“Hughes Sept. Report”) at pp. 2-3 (attached as Exhibit DSREIR 1 to SMW Sep Comments). In 2020, directional wells constituted 76% of all wells drilled in Kern County. *Id.*

The County offers a number of arguments as to why it cannot cluster multiple wells, all without merit. To begin with, County asserts that it cannot cluster wells because “individual farmers may prefer that wells be distributed in multiple locations on the property rather than clustered on a larger pad in a single location.” Oct. DSREIR at 4.2-34. The County offers no evidence to support this assertion. Nor is it likely to find any, as a group of over 65 Kern County farmers were the ones to suggest clustering as a mitigation for the Project’s conversion of agricultural land in the first place. Exhibit DSREIR 10 (Letter from Holly King to Kern County Planning and Development Department, September 28, 2015). Regardless, CEQA requires the County to “minimize the Ordinance’s significant environmental impacts on farmland to the extent feasible, even over potential objections of landowners.” Hughes Dec. Report at p. 3; *see* Pub. Resources Code § 21002; Guidelines § 15126.4(a)(1).

The County next asserts that “[d]rilling laterally from a multi-well pad ... can expose operations to greater risk.” Oct. DSREIR at 4.2-38. Again, there is no evidence to support the County’s claim. As the Hughes Report explains, “[t]here is no reason that drilling from a multi-well pad would be any riskier than drilling from individual single-well pads.” Hughes Dec. Report at p. 7.

In a similarly unfounded assertion, the County claims that horizontal drilling is not feasible because it will result in longer drill times and, thus, higher emissions. Oct. DSREIR at 4.2-37. This argument defies logic. First, even a vertical well takes at least several days to drill. Hughes Dec. Report at p. 6. More importantly, drill times make up a miniscule portion of a well’s lifetime emissions. *Id.* As the Hughes Report explains, “[t]he County has offered no evidence to support the SREIR’s claim that clearing extra acres of land to build multiple single-well pads to drill vertical wells would produce less

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emissions than drilling directional or horizontal wells from a much smaller multi-well pad.” *Id.*

The County also suggests that the plethora of directional wells already in the County are not drilled at sufficiently high angles to make clustered well pads viable. Oct. DSREIR at 4.2-36 to -37. This is simply incorrect. As the Hughes Report explains, “even with 2,000 foot wells, enough offset using directional wells can be achieved from multi-well pads to eliminate considerable surface disturbance compared to individual pads with vertical wells.” Hughes Dec. Report at 5.

Finally, the County continues to assert that mineral ownership issues may preclude the use of a single well pad for multiple wells. Oct. DSREIR at 4.2-38 to -40. Our September comment letter had explained why these problems are overblown. SMW Sept. Comments at pp. 12-13. Still, the County insists that a legal surface lot could have multiple subsurface leases beneath it—all of which may have distinct ownership that would complicate clustering. Oct. DSREIR at 4.2-34. The County also suggests that many mineral leaseholds in Kern County are small, meaning there is a limited number of resources that can be accessed by horizontal drilling. *Id.* at 4.2-39.

These would-be ownership barriers do not survive scrutiny. As the December 2020 Hughes Report demonstrates in Figure 1, subsurface leases actually tend to be much larger than their surface counterparts in Kern County. *See* Hughes Dec. Report at pp. 3-4. Roughly 76 percent of Kern’s mineral leases are greater than 160 acres, and 54 percent are greater than 320 acres. *Id.* at pp. 7-8. Accordingly, the data simply does not support the County’s portrayal of subsurface leasing. Furthermore, in the rare circumstance where an applicant demonstrates that a mineral ownership issue does preclude directional drilling from a single well pad, the County could grant an exemption from the clustering requirement. *See* Hughes Dec. Report at p. 8. The County’s mineral ownership argument does not justify an across-the-board rejection of clustering in every situation.

II. The October DSREIR Fails to Provide Legally Adequate Mitigation for, and Monitoring of, the Project’s Noise Impacts.

In their September 2020 report, noise experts Salter and Associates identified numerous serious problems with the August DSREIR’s analysis and mitigation of noise impacts. Charles M. Salter Associates, Inc., Kern County Zoning Ordinance Revision, Acoustical Comments On Draft Supplemental Recirculated Environmental Impact Report, September 2020 (“Salter Sept. Report”) (attached as Exhibit DSREIR 2 to SMW Sept. Comments).

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As discussed in the Salter December Report, attached hereto as Exhibit DSREIR 6, the October DSREIR apparently attempts to respond to at least some of the deficiencies Salter noted in its September report. Nonetheless, significant errors in the DSREIR's analysis remain, undercutting the accuracy of noise measurements and the effectiveness of proposed mitigation.

First, the October DSREIR's proposed mitigation relies on an erroneous comparison between two different noise metrics. Existing ambient noise levels and noise standards used as thresholds for determining the significance of noise increases (drawn from the Kern County and Metropolitan Bakersfield General Plans) are expressed in day-night level ("DNL") decibels. Salter Dec. Report at 3. In contrast, noise levels from operation of equipment used to calculate distances from sensitive receptors within which additional mitigation is required are expressed in dB Leq. *Id.* at 3-8. This difference is highly significant, and could result in unmitigated noise increases of roughly 10 dB DNL—well in excess of the DSREIR's 5 dB DNL threshold of significance for increased noise. *See id.* at 5. The mitigation "trigger" distances in the DSREIR thus must be revised to account for noise contours expressed in dB DNL, not dB Leq. *Id.* at 5-8.⁶

Second, and relatedly, the noise metrics used in Mitigation Measures MM 4.12-1 and 4.12-2 do not clearly or consistently reflect the metrics used in the October DSREIR's noise analysis. Again, ambient noise levels and standards in the DSREIR's significance analysis are expressed in dB DNL. Levels identified in the DSREIR's mitigation measures should use the same metric. Both measures should be revised to clearly state that levels and standards used in mitigation are similarly expressed in dB DNL. *See* Salter Dec. Report at 8-9.

Third, Mitigation Measures MM 4.12-1 and 4.12-2 fail to provide adequate standards for noise measurements performed for a required Acoustic Noise Reduction Report. These measures should clearly state that noise measurements must be performed

⁶ This error also infects the October DSREIR's discussion of a 2500-foot setback alternative. Oct. DSREIR at 6-35 to 6-39. The DSREIR essentially concludes that a 2500-foot setback from sensitive receptors would not provide any additional benefit in terms of noise reduction. However, this conclusion relies on the mitigation "trigger" distances in Mitigation Measures MM 4.12-1 and 4.12-2, which are insufficiently protective of sensitive receptors due to their reliance on the Leq metric rather than the DNL metric. As a result, the October DSREIR's rejection of the 2500-foot setback alternative on the ground that it would not reduce noise impacts is unsupported.

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at the location of sensitive receptors, and should establish basic measurement protocols to ensure accuracy and consistency. Salter Dec. Report at 9.

Fourth, unlike MM 4.12-1, which requires monitoring of “construction” (i.e., drilling phase) noise, MM 4.12-2 does not require any monitoring or measurement of ongoing operational noise to verify compliance with the 5-dB standard for noise increases. MM 4.12-2 must be revised to include monitoring and measurement protocols that ensure compliance with applicable noise standards. Salter Dec. Report at 9.

As a result of these errors and omissions, the DSREIR’s analysis and mitigation of the Project’s noise impacts remain legally deficient.

III. The October DSREIR Fails to Correct Errors in the CHRA or Provide Mitigation to Ensure Compliance with the CHRA’s Assumptions.

Our comments on the August DSREIR identified serious flaws in the 2015 CHRA. SMW Sept. Comments at 20-22. In particular, an accompanying expert report by Dr. Phyllis Fox concluded that actual well densities in Kern County are far higher than the artificial well densities assumed in the CHRA’s analysis. Phyllis Fox, Report on the Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020 A, focused on Oil and Gas Local Permitting, September 2020 (“Fox Sept. Report”) (attached as Exhibit DSREIR 3 to SMW Sept. Comments).

The October DSREIR fails to revise the CHRA or correct its erroneous assumptions about well density. Instead, the October DSREIR relies on a “technical memorandum” that claims the CHRA’s assumptions are conservative because it is unlikely that wells would be drilled either simultaneously or in close succession at the densities modeled in the CHRA. *See* Oct. DSREIR Appx. B-1 at 3.

As the Fox December Comments attached hereto as Exhibit DSREIR 7 explain, the technical memorandum’s defense of the CHRA suffers from two fatal flaws. First, the memorandum fails to account for a foreseeable increase in oil and gas drilling activity as a result of this Project, rendering its reliance on current assumptions about drilling patterns and equipment availability inaccurate. Fox Dec. Comments at 2. Second, the memorandum errs by focusing solely on short-term (acute) health risks from temporary drilling operations, while ignoring longer-term (chronic) health risks associated with operation and maintenance of wells and production facilities. *Id.*

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Cont'd

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To address these flaws, Dr. Fox proposes a new mitigation measure to ensure that actual well densities under the Project will not exceed densities assumed in the CHRA. *Id.* at 3. The SREIR must either correct the flawed assumptions in the CHRA, or propose mitigation necessary to ensure those assumptions are enforced, before the County can move forward with the Project. *See Covington v. Great Basin Unified Air Pollution Control Dist.* (2019) 43 Cal.App.5th 867, 877-83.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP

Rachel B. Hooper

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List of Exhibits:

- Exhibit DSREIR 4 KGF's Proposed Revisions to Kern County's Legacy Equipment Mitigation.
- Exhibit DSREIR 5 J. David Hughes, Comment on Draft Supplemental Recirculated Environmental Impact Report, Revisions to the Kern County Zoning Ordinance – 2020 A, December 2020.
- Exhibit DSREIR 6 Charles M. Salter Associates, Inc., Kern County Zoning Ordinance Revision, Acoustical Comments On Draft Supplemental Recirculated Environmental Impact Report, December 2020.

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- Exhibit DSREIR 7 Phyllis Fox, Comments on the October 2020 Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020 A, focused on Oil and Gas Local Permitting, December 2020.
- Exhibit DSEIR 8 Deed of Agricultural Conservation Easement Between Wasco Real Properties I, LLC and Sequoia Riverlands Trust re Kern County Parcel No. 072-150-07, recorded on Dec. 9, 2009.
- Exhibit DSEIR 9 Deed of Agricultural Conservation Easement Between Wasco Real Properties I, LLC and Sequoia Riverlands Trust re Kern County Parcel Nos. 072-160-10 and 072-160-13, recorded on Dec. 9, 2011.
- Exhibit DSEIR 10 Letter from Holly King to Kern County Planning and Development Department, September 28, 2015.

Exhibit DSREIR 4

EXHIBIT DSREIR 4**KGF'S PROPOSED REVISIONS TO KERN COUNTY'S LEGACY EQUIPMENT MITIGATION** (proposed changes appear bolded and underlined)**MM 4.2.-1 (NEW)**

For Oil and Gas Conformity Reviews that are 1) on land designated Prime, Farmland of Statewide Importance, or Unique Farmland; and 2) that have been actively farmed five years or more out of the last 10 years; and 3) have a water allocation sufficient for farming from any source (**"Qualifying Farmland"**) shall have the following ~~siting~~ requirements:

A. [Requirement for per-well acreage cap]

B. No permit for a new well shall be issued ~~if the applicant has legacy unused oil and gas equipment on the same legal parcel.~~ **unless: (i) the Applicant removes legacy unused oil and gas equipment ("Legacy Equipment") that it owns on the same legal parcel where the farmland conversion will occur ("New Conversion Parcel"); or (ii) if the Applicant does not own Legacy Equipment on the New Conversion Parcel, the Applicant removes Legacy Equipment that it owns from the farm that includes the New Conversion Parcel; or, (iii) if neither (i) nor (ii) applies, the Applicant removes Legacy Equipment it owns from other Qualifying Farmland in the Project Area; or (iv) if neither (i), (ii) nor (iii) applies, the Applicant contributes sufficient funds to a mitigation fee bank established by Kern County for the purpose of removing Legacy Equipment from Qualifying Farmland in the Project Area ("Mitigation Bank"). All mitigation in this section shall occur at a 1:1 ratio, as described in subsection B(2) below.**

1. The **Any Legacy Equipment removed pursuant to this measure** ~~legacy oil and gas equipment~~ shall be removed inclusive of compliance with applicable legal requirements (e.g., well plugging and abandonment requirements under state or federal regulations), and restoration of the surface grade consistent with surrounding lands on the parcel ~~completed before any new well activity can commence.~~ **This process shall also include removal of soil compaction and contaminants to restore the land to a fallow agricultural condition.** A full plan and details of actions needed to remove the Legacy Equipment shall be submitted with the site plan, be shown on a detail of the site plan, and be a condition of the approved permit. **All Legacy Equipment removal efforts, and/or payments into the Mitigation Bank, shall be completed before any new well activity can commence.**

2. The Applicant's removal of Legacy Equipment and/or contribution to the **Mitigation Bank shall achieve mitigation, at a ratio of 1 to 1, for the conversion of Qualifying Farmland resulting from activities authorized by the Applicant's permit. The 1 to 1 ratio is applied to actual ground disturbance area for oil and gas activities (inclusive of temporary construction and permanent operational impact areas), but excludes non-farmed existing areas such as roads, and tank and maintenance areas, and lands for which agricultural mitigation has previously been provided at a 1 to 1 ratio.**

3. The County shall establish the Mitigation Bank within a reasonable time after its adoption of the Ordinance. In establishing the mitigation bank, the County shall evaluate and determine the cost of legacy equipment removal and soil remediation per acre. Based on this cost, the County shall establish a set formula for a standard fee sufficient to achieve mitigation, at a ratio of 1 to 1, based on the number of acres converted. The County also shall establish guidelines and procedures to ensure that fees collected are expended in a manner that actually and effectively achieves the mitigation standards set forth in this mitigation measure.

4. An Applicant shall be deemed to “own” Legacy Equipment that is owned by (a) (i) the Applicant, or (ii) an entity controlled by or affiliated with the Applicant on the date the application is filed, or (b) an entity not controlled by or affiliated with the Applicant to which the Applicant transferred title to the Legacy Equipment within one year prior to the date that application is filed. An Applicant shall be deemed to be an “affiliate” of any entity that controls or is controlled by the Applicant or an entity that has hired the Applicant as an independent contractor.

5. For farmland parcels in Tier 1, when both the surface and minerals are owned by the applicant, this measure does not apply.

C. Siting and construction of new disposal ponds are prohibited.

Exhibit DSREIR 5

**Comment
on
Draft Supplemental Recirculated Environmental
Impact Report
Revisions to the
Kern County Zoning Ordinance – 2020 A**

Prepared
for
Shute, Mihaly & Weinberger LLP

Prepared by

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December 10, 2020

Comment on “Impact 4.2-1 of Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020 A”

J. David Hughes

I am an earth scientist who has studied the oil, gas and coal resources of the U.S. and Canada for more than 40 years, including 32 years with the Geological Survey of Canada as a scientist and research manager. I hold Honors Bachelors and Masters degrees in geology from the University of Alberta. For the past 12 years, I have headed Global Sustainability Research Inc., a consultancy that has studied unconventional oil and gas resources across the U.S. and Canada, including California. I am a board member of Physicians, Scientists and Engineers for Healthy Energy and a fellow of the Post Carbon Institute and the Canadian Centre for Policy Alternatives.

A. Introduction

This report provides comments on the Draft Supplemental Recirculated Environmental Impact Report Revisions to the Kern County Zoning Ordinance – 2020 A, dated October 30, 2020 (“SREIR”). It supplements my comments dated September 14, 2020 on the County’s original version of the SREIR, which was released on August 3, 2020. My earlier comments, including all accompanying exhibits, are incorporated by reference as if fully set forth herein.

Kern County has been subject to the drilling of tens of thousands of oil and gas wells over the past century. These wells have disturbed a great deal of the land surface of Kern County, including its prolific agricultural lands, and oil and gas companies have left large amounts of abandoned “legacy equipment” from wells that have ceased production and have not been reclaimed. These wells have resulted in the conversion of valuable agricultural lands and represent a serious environmental hazard.

Kern County projects that, under the proposed Ordinance, 3,649 new wells will be drilled per year in the future, including 248 wells per year on Tier 2 agricultural land (Chapter 3.0, Table 3-7). This amounts to 72,960 new wells over the 2020 to 2040 period—or more than double the 31,722 productive wells in the entire state (see Table 3, *infra*). Importantly, 4,960 of these new wells will be located on Tier 2 agricultural land. This represents a significant future impact which the SREIR seeks to address.

The SREIR proposes a new mitigation measure, MM 4.2-1 (New)¹, to reduce the Ordinance’s impacts on valuable agricultural lands, but it concedes that those impacts will remain significant even after the mitigation. SREIR at 4.2-41. My comments address two major problems with MM 4.2-1. First, the measure includes a per-well acreage cap that ignores the efficiencies of single multi-well pads, which are commonly used throughout Kern County. Second, the County’s provision calling for removal of legacy oil and gas equipment contains loopholes that undermine its effectiveness. If the County corrects these problems, which in my opinion would be feasible, it could prevent far greater conversions of agricultural lands resulting from the Ordinance.

¹ Hereinafter, this measure is referred to as “MM 4.2-1.”

B. The SREIR's acreage cap for new wells on agricultural land must be decreased where the applicant proposes multiple well on the project site.

The SREIR's new mitigation measure proposes a maximum disturbed area for an individual well of 2 acres in the Western subarea, 3 acres in the Central subarea, and 1.2 acres in the Eastern subarea. MM 4.2-1(A). From a technological standpoint, I have no issue with these acreage limitations for a project consisting of a single well on farmland. However, when a project includes more than one well, the per-well acreage provision is excessive, as it ignores efficiencies that could be derived from drilling multiple directional or horizontal wells from a single pad. MM 4.2-1(A) should be revised to reflect that such directional drilling would result in a much smaller footprint per well .

The SREIR offers six arguments against any consideration of directional drilling as mitigation. As explained below, each of these arguments lacks merit.

- 1) SREIR claim (Page 4.2-34): "However, even where the geology is suitable for horizontal drilling, individual farmers may prefer that wells be distributed in multiple locations on the property rather than clustered on a larger pad in a single location."

Response: It is highly unlikely that Kern County farmers would prefer having more land disturbed through the oil operator's use of many single-well pads as opposed to much less disturbance with a single multi-well pad. Certainly, we have located no evidence that supports this view. In any event, the California Environmental Quality Act requires the County to minimize the Ordinance's significant environmental impacts on farmland to the extent feasible, even over potential objections of landowners.

- 2) SREIR claim (Page 4.2-34): The SRIER implies that single-well pads are needed as "one legal lot of agricultural land could have multiple distinct ownership subsurface leases."

Response: In fact, subsurface leases tend to be much larger on average than surface parcels, so this would be a relatively rare occurrence. Figure 1 compares surface parcels to subsurface leases on agricultural land north of Bakersfield.

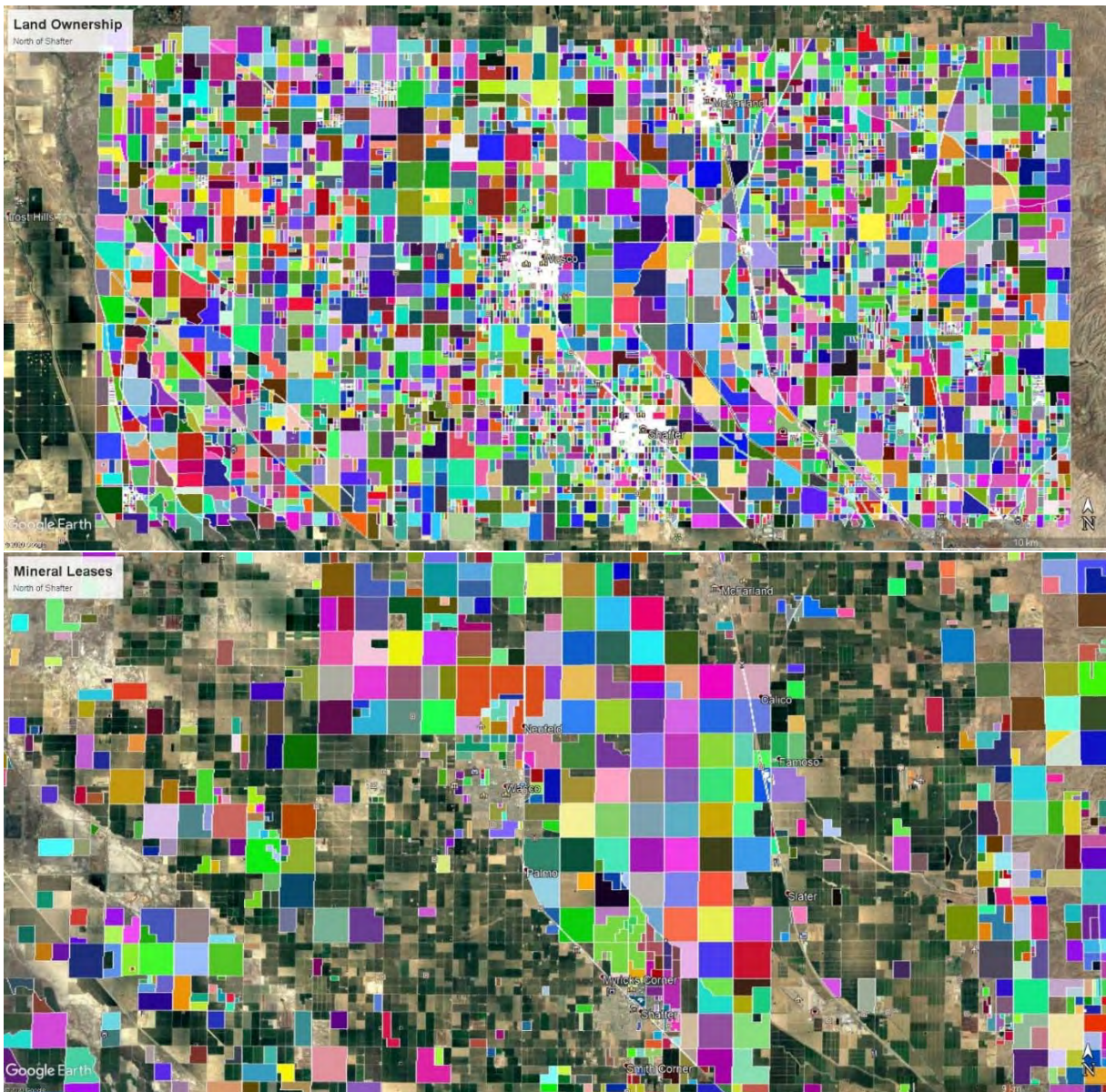


Figure 1 – Upper: surface ownership parcels north of Bakersfield. Lower: subsurface ownership for the same area. Large squares are 640 acres in area (data from Kern County assessor's office).

- 3) SREIR claim (Page 4.2-34): The SREIR admits that in the Wasco area “horizontal drilling from larger clustered well pads is routinely utilized by agreement among surface and mineral owners.” Nevertheless, it goes on to imply that even though directional wells make up the majority of current drilling, they are not drilled at sufficiently high angles to make clustered well pads viable.

Response: In 2020, horizontal wells constituted 7%, directional wells 76% and vertical wells 17% of wells drilled in Kern County (Enverus, retrieved September, 2020). Since 2012, horizontal and directional wells have averaged 73% of all wells drilled (see Figure 2 in my comments dated September 14, 2020 on the County's original version of the SREIR). Using

wells as old as 2000, the County claims (Page 4.2-37), that “[f]ifty-three percent of the directional wells had an inclination of less than 20 degrees,” which means that 47% were greater than 20 degrees. Directional drilling at 20 degrees or more is certainly technologically feasible, and the technology of directional drilling has seen major advancements in recent years, which is why the majority of wells drilled in Kern County since 2012 are horizontal or directional.

It is true that the deeper a directional well is, the more lateral offset can be achieved with a given inclination angle. Although many directional wells in Kern County are in the 2,000-foot depth range, some are greater than 16,000 feet. Figure 2 illustrates the distribution of directional wells drilled in Kern County by total depth from 2010 to 2020.

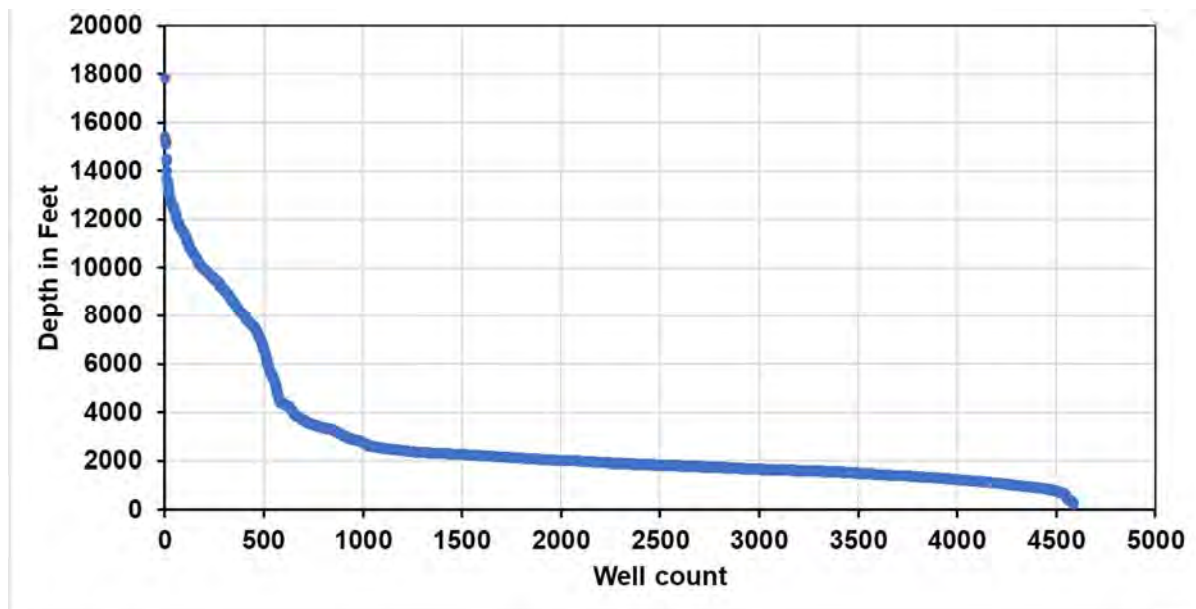


Figure 2 – Total depth of Kern County directional wells drilled from 2010 to 2020 (data from Enverus retrieved September, 2020).

The SREIR errs in suggesting that wells drilled at lower angles cannot achieve meaningful lateral offset. In fact, even with 2,000-foot wells, enough offset using directional wells can be achieved from multi-well pads to eliminate considerable surface disturbance compared to individual pads with vertical wells. Table 1 illustrates the offsets possible with various directional well inclination angles and well depths.

Directional offset vs depth (feet)								
Depth (feet)	Directional well inclination (degrees)							
	10	20	30	40	50	60	70	80
1,000	174	342	500	643	766	866	940	985
2,000	347	684	1,000	1,286	1,532	1,732	1,879	1,970
3,000	521	1,026	1,500	1,928	2,298	2,598	2,819	2,954
4,000	695	1,368	2,000	2,571	3,064	3,464	3,759	3,939
5,000	868	1,710	2,500	3,214	3,830	4,330	4,698	4,924
6,000	1,042	2,052	3,000	3,857	4,596	5,196	5,638	5,909
7,000	1,216	2,394	3,500	4,500	5,362	6,062	6,578	6,894
8,000	1,389	2,736	4,000	5,142	6,128	6,928	7,518	7,878
9,000	1,563	3,078	4,500	5,785	6,894	7,794	8,457	8,863
10,000	1,736	3,420	5,000	6,428	7,660	8,660	9,397	9,848
11,000	1,910	3,762	5,500	7,071	8,426	9,526	10,337	10,833
12,000	2,084	4,104	6,000	7,713	9,193	10,392	11,276	11,818
13,000	2,257	4,446	6,500	8,356	9,959	11,258	12,216	12,803
14,000	2,431	4,788	7,000	8,999	10,725	12,124	13,156	13,787
15,000	2,605	5,130	7,500	9,642	11,491	12,990	14,095	14,772
16,000	2,778	5,472	8,000	10,285	12,257	13,856	15,035	15,757

Table 1 – Lateral offset attainable with directional wells drilled at angles between 10 and 80 degrees.

- 4) SREIR claim (Page 4.2-37): “Horizontal drilling not only requires longer drilling times, which increase emissions, but also tends to require greater power. Operation of larger, higher horsepower engines for horizontal drilling results in higher emissions than vertical drilling for an equivalent distance. Well pad preparation and construction emissions are negligible compared to emissions from drilling and primarily consist of PM10.”

Response: Drilling a horizontal well may last two weeks at most, and constitutes a miniscule proportion of the emissions over a well’s lifetime. Drilling a vertical well would take at least several days. The County has offered no evidence to support the SREIR’s claim that clearing extra acres of land to build multiple single-well pads to drill vertical wells would produce less emissions than drilling directional or horizontal wells from a much smaller multi-well pad. Agricultural land is a critical resource and destroying it must be minimized.

- 5) SREIR claim (Page 4.2-38): “Drilling laterally from a multi-well pad in a location with highly faulted geology under tectonic stress can also expose operations to greater risk. Penetrating unstable formations at the incorrect angle can lead to borehole breakout with a potential unplanned sidetrack and/or loss of the well. The higher density of activity may reduce the footprint, but also increase the risk and potential magnitude of incidents resulting in disturbance to lands and habitat, compared to dispersed activities at single well pads.”

Response: There is no evidence to support this claim, and the County cites none. There is no reason that drilling from a multi-well pad would be any riskier than drilling from individual single-well pads or increase the “potential magnitude of incidents resulting in disturbance to lands and habitat” as claimed by the SREIR. Indeed, the evidence in my response to Claim 3) above shows that 83% of all wells drilled in 2020 were directional or horizontal. Thus, not only are directional and horizontal wells safe, they are common practice.

- 6) SREIR claim (Page 4.2-39): “Many mineral leaseholds in Kern County are modest in size, limiting the quantity of resources that can be accessed by horizontal drilling across a single parcel. For example, the distribution of lease sizes in Kern County for California Resources Corporation is shown in Table 4.2-18. Over half of the mineral leases are less than 40 acres in size, and 20% of the leases are less than 20 acres, while only 7.26% are 640 acres or greater.”

Response: To back up its claim, the SREIR provides the following table (Table 2) showing the number and size of leases, but it neglects to calculate the actual area of the leases in each size category. I have added three columns to the County’s table to show the average mineral lease size for each category, total acreage covered, and per cent of total acreage in each category:

<i><u>Mineral Lease Size</u></i> <i><u>(Acres)</u></i>	<i><u># Leases</u></i>	<i><u>% of Total</u></i>	Average Size (acres)	Total Acres	% of Total Acreage
<i><u>640 and greater</u></i>	468	7.26	700	327,600	31.22%
<i><u>320 – 639.9</u></i>	501	7.77	480	240,480	22.92%
<i><u>160 – 319.9</u></i>	945	14.66	240	226,800	21.61%
<i><u>80 – 159.9</u></i>	1,208	18.73	120	144,960	13.81%
<i><u>40 – 79.9</u></i>	1,226	19.01	60	73,560	7.01%
<i><u>20 – 39.9</u></i>	750	11.63	30	22,500	2.14%
<i><u>< 20</u></i>	1,350	20.93	10	13,500	1.29%

Table 2 – Number and size of mineral leases in Kern County from SREIR Page 4.2-39.

Seventy-six per cent of mineral leases in Kern County are greater than 160 acres in size and 54% are greater than 320 acres. Only 10% of mineral leases are smaller than the 40 acres that the SREIR claims will be an impediment to the quantity of resources than “can be accessed by horizontal drilling across a single parcel.”

These facts confirm my response to Claim 2) above—and illustrated in Figure 1—that mineral leases tend to be much larger than surface land parcels. Accordingly, the situation the SREIR fears of multiple mineral owners beneath a single surface parcel will be a relatively rare occurrence. Furthermore, the predominance of directional and horizontal drilling in recent years confirms that the SREIR’s claim is not a serious impediment.

RECOMMENDATION: The County should revise MM 4.2-1(A) to mandate the use of multi-well pads using directional and/or horizontal drilling to minimize the land disturbance of new wells on qualifying agricultural land. Multi-well pads in Canada, for example, routinely achieve

land disturbance rates of less than one acre per well, even with horizontal wells exceeding 10,000 feet, as opposed to up to three acres per well proposed in the SREIR. Applicants should be required to present full development plans for an area, rather than applying for each well separately. It is recognized that there may be exceptional circumstances of geology and mineral ownership that make multi-well pads impossible in some cases. In such cases, the applicant should be required to provide the County with clear evidence as to why it should be granted an exemption from the clustered well requirement. Finally, the County's mitigation measure should include a requirement that new wells be sited on already disturbed land from previous oil and gas development, or on otherwise unproductive land, rather than disturbing productive agricultural land, unless the applicant provides the County with clear evidence as to why specific geological, economic, or legal factors make it impossible to comply with this requirement.

C. The SREIR's requirement for removal of legacy equipment is ineffective.

The SREIR's new mitigation measure includes a provision, MM 4.2(B), addressing the removal of legacy oil and gas equipment from certain qualifying farmland. It reads as follows:

"No permit for a new well shall be issued if the applicant has legacy unused oil and gas equipment on the same legal parcel. The legacy oil and gas equipment shall be removed inclusive of compliance with applicable legal requirements (e.g., well plugging and abandonment requirements under state or federal regulations), and restoration of the surface grade consistent with surrounding lands on the parcel completed before any new well activity can commence."

Unfortunately, MM 4.2(B) is flawed and will provide little, if any, effective mitigation for farmland conversions due to the Ordinance.

The issue of cleaning up unused oil and gas production equipment and restoring well sites to prior conditions is a major problem in oil and gas jurisdictions in North America. In Alberta, Canada, for example, estimates of liabilities for cleanup are as high as \$260 billion, most of which are unfunded.² The Canadian government has provided \$1.7 billion of public funding to start addressing the problem.³

A preliminary assessment of the problem in California has been conducted by the California Council on Science and Technology ("Council").⁴ The Council found that there are 5,540 wells in the state that are "orphaned" or are "at high risk of becoming orphaned" (orphaned wells have been abandoned by insolvent operators). This represents a cleanup liability estimated by the

² Global News, November 1, 2018, Cleaning up Alberta's oil patch could cost \$260 billion, internal documents warn, <https://globalnews.ca/news/4617664/cleaning-up-albertas-oilpatch-could-cost-260-billion-regulatory-documents-warn/>

³ Canadian Broadcasting Corporation, April 17, 2020, \$1.7B to clean up orphaned and abandoned wells could create thousands of jobs, <https://www.cbc.ca/news/canada/calgary/federal-oil-and-gas-orphan-wells-program-1.5535943>

⁴ California Council on Science and Technology, November, 2018, Orphan Wells in California: An Initial Assessment of the State's Potential Liabilities to Plug and Decommission Orphan Oil and Gas Wells, <https://ccst.us/wp-content/uploads/CCST-Orphan-Wells-in-California-An-Initial-Assessment.pdf>

Council at \$500 million, which is more than ten times the available bond funds set aside for this use. In addition, the Council identified 69,425 “idle or marginal” wells that will likely require cleanup in the near term. The Council estimated that the total cost of cleanup of the 106,687 wells that must eventually be plugged and abandoned in the state is \$9.1 billion. Table 3 summarizes the Council’s categorization and number of wells in California.

Categorization of oil and gas wells	
Active and Idle Wells	
Likely Orphan Wells	2,565
High Risk of Becoming Orphan Wells	2,975
Other Idle and Marginal Wells	69,425
Higher-Producing Wells	31,722
Plugged Wells	
Plugged before modern requirements	41,390
Plugged after modern requirements	80,571
Total	228,648

Table 3 – Categorization of oil and gas wells in California.

A large proportion of orphaned wells and other idle and marginal wells are in Kern County, as illustrated in Figure 3.

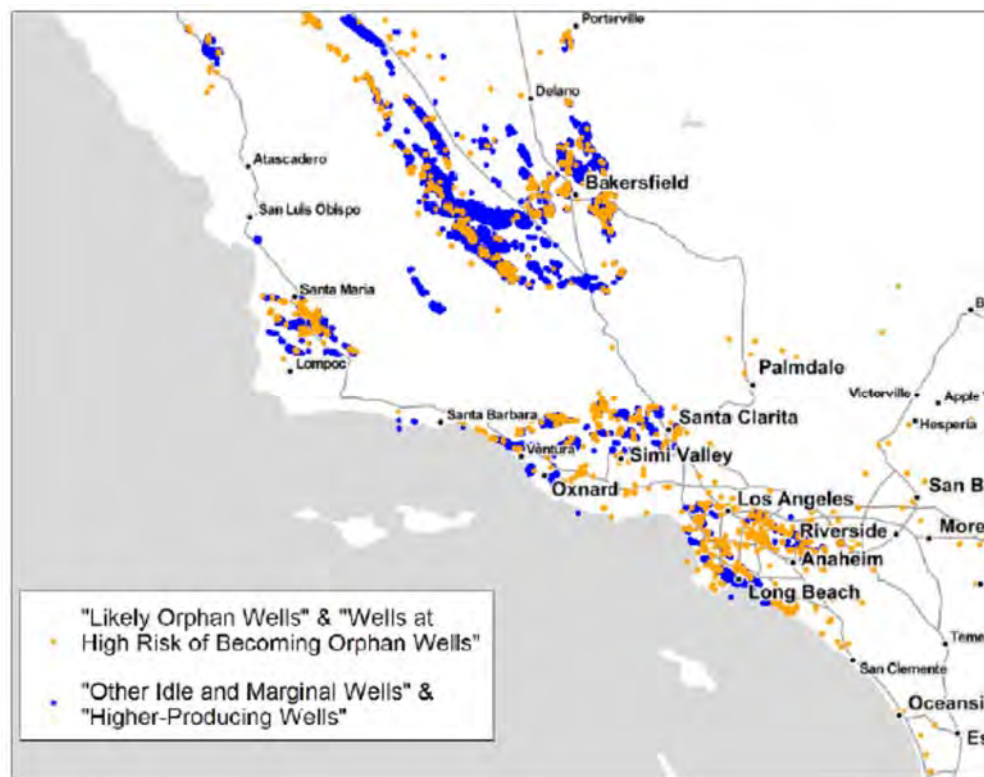


Figure 3 – Distribution of orphaned, idle and marginal wells in southern California.

MM 4.2-1(B) purports to mitigate the Ordinance's conversion of agricultural lands, but its approach is guaranteed to fail. First, the measure addresses only the circumstance of an applicant having unused legacy equipment on the "same legal parcel" as the proposed new well. An applicant could readily avoid this requirement by conducting its activities on a neighboring parcel. As shown in my response to Claim 2 above, the surface parcels in Kern County tend to be much smaller than the subsurface area covered by the mineral leases. Thus, a mineral rights owner could typically access its oil from multiple surface parcels. In other words, to avoid triggering MM 4.2-1(B)'s requirement for removal of legacy equipment, the oil operator could simply avoid drilling from any surface parcel occupied by the equipment. The use of directional drilling, prevalent in Kern County, also increases the likelihood operators use this "parcel avoidance" approach.

Second, MM 4.2-1(B) is unlikely to provide effective mitigation because most applicants will not, in fact, own the legacy equipment. Given that well decommissioning, plugging and reclamation are part of the regulations for acquiring a drilling permit in the first place, this is likely to be a rare occurrence, assuming most operators comply with the regulations. Accordingly, if there is legacy equipment that has been abandoned by an insolvent operator on the same parcel, the applicant for a new well, which does not own or control the insolvent operator, would have no obligation to clean it up under the SREIR. Thus, if the County's new mitigation is to be effective, there must be an option allowing an applicant that owns no legacy equipment in the project area to pay an in lieu fee into a mitigation bank set up for that purpose.

For these reasons, MM 4.2-1(B) amounts to a toothless regulation that fails to adequately mitigate for the loss of farmland due to oil drilling under the Ordinance.

RECOMMENDATION: The County should revise MM 4.2-1(B) to ensure that it provides effective mitigation for the Ordinance's significant impacts on agricultural land conversions. The provision should be expanded to ensure that legacy equipment is removed from qualifying farmland even if it is not on the same parcel as the new drilling, or, if the applicant does not own or control legacy equipment, that it pay into a legacy equipment removal fund. Specifically, the measure should be revised to provide a tiered system of mitigation, as follows:

- * If the applicant owns legacy equipment on the same parcel, or on the same farm, as the new oil well, the applicant should be required to remove the legacy equipment, on a 1:1 basis.
- * If the applicant does not own legacy equipment on the same parcel or farm, it should be required to remove legacy equipment that it owns from other farmland in the project area, on a 1:1 basis.
- * If the applicant does not own any legacy equipment occupying farmland in the project area, then it should be required to contribute to a County fund dedicated to the removal of legacy equipment from farmland in the project area. Its contribution would be proportional, on a 1:1 basis, to the conversion of farmland resulting from the oil and gas activities authorized by the applicant's permit.

As the County sets up its legacy equipment removal fund, it would be helpful to (a) inventory the number of orphaned legacy wells in the County for which there are insufficient funds in bonds for cleanup and which solvent operators have no obligation to address, and (b) estimate the cost for the cleanup. The County could then establish an appropriate, standard fee to charge applicants seeking permits to drill for oil/gas on qualifying farmland. Again, the charge would be in proportion to the harm/farmland conversion caused by the applicant's project.

Exhibit DSREIR 6

Kern County Zoning Ordinance Revision

(Focused on Oil and Gas Local Permitting)

ACOUSTICAL COMMENTS ON REVISED DRAFT SUPPLEMENTAL RECIRCULATED ENVIRONMENTAL IMPACT REPORT

14 December 2020

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INTRODUCTION

As you know, we commented on the DEIR, FEIR, and initial DSREIR (dated August 2020) for this project and concluded that the impact analyses did not sufficiently address noise. The document has been significantly revised as a new Draft Supplemental Recirculated EIR (dated October 2020). As requested, we reviewed the updated noise section (Volume 1, Section 4.12). This report summarizes our review and comments.

EXECUTIVE SUMMARY

The DSREIR has been revised to address most of our comments. The mitigation measures for both construction and operational noise direct future development to follow these basic protocols:

- Mandatory minimum setbacks for operational activities.
- Identification of sensitive receptors within a screening distance.
- Identification of sensitive receptors within a “Mitigation Trigger Distance”, which triggers the development of an Acoustic Noise Reduction Report and implementation of noise reduction measures to reduce impacts to the meet the Noise Standard.
 - For sensitive locations with current ambient noise levels below 65 dB, Project activities may not increase the existing ambient level at sensitive receptors by more than 5 dB.
 - For sensitive locations with current ambient noise levels above 65 dB, Project activities may not increase the existing ambient level at sensitive receptors by more than 1 dB.
- Monitoring of construction noise is required.

Our comments focus on the following issues:

1. The DSREIR fails to protect people from excessive noise at quieter sensitive receptors by mistakenly comparing the Leq noise level of Project activities to the ambient DNL. This effectively allows Project noise to increase ambient noise level by up to 10 dB, from DNL 45 dB to DNL 55 dB, due to the mix-up of metrics. This should be resolved.
2. The Mitigation Measures should be made clearer by consistently specifying the DNL noise metric and requirements for ambient noise measurements.
3. Construction noise monitoring is specified, but operational noise measurements are missing from Mitigation Measure MM 4.12-2 to verify that operational noise sources comply with the Noise Standard.

SALTER COMMENTS

0059-50

1. DSREIR Fails to Mitigate Noise at Quieter Sensitive Receptors Due to Metric Mix-up

We found a mistake in the impact analysis that would result in significant increases in ambient noise at quieter existing sensitive receptor locations. This error originates in the comparison of construction noise levels to ambient noise levels and promulgates into Mitigation Measures 4.12-1 and 4.12-2 as improper “Mitigation Trigger Distances.”

As compared to the August 2020 draft, the impact analyses in the October 2020 DSREIR have now been revised to crucially focus on the comparison of Project related noise to the low ambient noise levels found in the study area. Project noise is to be evaluated and mitigated based on an “incremental noise standard,” which constitutes an increase in existing ambient noise levels, in accordance with the standards of the Metropolitan Bakersfield General Plan and Kern County General Plan Noise Goal #1. This is summarized in the following excerpt from the “Thresholds of Significance” section of the DSREIR:

Average ambient noise in the Project area is 54.7 dB DNL. It is therefore appropriate to assess the noise effects of the Project against the 5 dB increase standard. An increase of 5 dB is also the point at which a change in ambient sound becomes readily perceptible, while smaller changes are barely perceptible. It is also appropriate to use a 1 dB increase for locations where ambient noise is greater than or equal to 65 dB. [excerpt Revised DSREIR, October 2020, Page 4.12-26, Paragraph 1]

The analysis goes awry in the evaluation and mitigation of construction and operational noise levels. The DSREIR states that the lowest measured ambient noise level in the study area was DNL 44.8 dB. When the DSREIR applies the 5 dB incremental increase to this level, it establishes a baseline of DNL 49 dB (as stated in the DSREIR page 4.12-32, Paragraph 1 and page 4.12-38, Paragraph 3). However, when generating screening contours (distances at which the activity noise would be 49 dB), the DSREIR uses the Leq metric instead of the DNL metric. This is highlighted on the following excerpts from the DSREIR:

Table 4.12-12: Application of County Thresholds to Ambient Noise Study Locations

	DNL (dB)	Noise Exposure Increase (dB)	Project Noise Exposure (dB)	Combined Total Noise (dB)
Lowest Measured Ambient Noise	44.8	5	48.8	49.8
Highest Measured Ambient Noise	67.8	1	63.8	68.8
Average Measured Ambient Noise	54.7	5	58.7	59.7

Key:

dB = decibels

DNL = average day-night level

Incremental change over ambient is generally dependent on site-specific measures, but by using the lowest measured ambient noise level from the 2015 Environmental Noise Assessment, a contour can be generated beyond which any increase is below 5 dB. The lowest measured ambient level was 44.8 dB. Based on the 5 dB incremental standard, Project noise could reach approximately 49 dB (48.8 dB) without resulting in an exceedance. This results in the following screening contours. If these contours are achieved for the respective activity, then the activity will not increase the existing ambient by more than 5 dB.

Table 4.12-12A: Construction Noise Exposure Levels

<u>Activity</u>	<u>Distance (feet) to 49 dB L_{eq} Contour</u>
<u>Drilling (Well Advancement)</u>	<u>3,900</u>
<u>Drilling (Pull Out Of Well/Borehole)</u>	<u>2,350</u>
<u>Large-Scale Exploratory Drilling^(a)</u>	<u>7,900</u>
<u>Well Workover (Maintenance)</u>	<u>2,355</u>
<u>Well Stimulation (Hydraulic Fracturing)</u>	<u>2,965</u>

Source: WSP 2020.

Excerpt from Revised DSREIR, October 2020, Page 4.12-32 – markups added

Incremental change over ambient level is generally dependent on site-specific measures, but by using the lowest measured ambient noise level from the 2015 Environmental Noise Assessment, a contour can be generated beyond which any increase would be below 5 dB. The lowest measured ambient level was 44.8 dB. Based on the 5 dB incremental standard, Project noise could reach approximately 49 dB (48.8 dB) without resulting in an exceedance. This results in the following screening contours. If these contours are achieved for the respective activity, then the activity will not increase the existing ambient by more than 5 dB.

Table 4.12-14A: Operation Noise Exposure Levels

<u>Activity</u>	<u>Distance (feet) to 49 dB Leq Contour</u>
<u>Well Production (Electric Power)</u>	<u>198</u>
<u>Well Production (Diesel Power)</u>	<u>650</u>

Source: WSP 2020.

Excerpt from Revised DSREIR, October 2020, Page 4.12-38 – markups added

Effectively, the DSREIR is comparing the Leq of Project noise to the ambient DNL. The problem with this mix-up of metrics is that the construction and operational activities are projected to generate a DNL approximately 6 dB higher than the Leq (explained further below). These 49 dB Leq contour distances are then used in the Mitigation Measures to establish “Minimum Trigger Distances” which initiate an Acoustic Noise Reduction Report and the implementation of noise reduction measures. Beyond those “Minimum Trigger Distances,” no additional study or noise reduction measures are required.

So, at a quiet sensitive receptor with an ambient noise level of DNL 45 dB, the current DSREIR would allow construction and operational activities to generate 49 dB Leq and approximately DNL 55 dB. Thus, the DSREIR would allow a 10 dB increase in ambient noise levels, a significant increase. This does not meet the Threshold of Significance (5 dB incremental increase in ambient noise) established earlier in the report in accordance with the City and County General Plan noise standards and CEQA guidelines. The current “Minimum Trigger Distances” of the DSREIR do not achieve the goal of protecting all people from excessive noise, nor do they maintain moderate noise levels in accordance with Kern County noise goals (Kern County Noise Element, Goal #1).

Another problem cause by this error is the fact that the Leq is a simple average of noise and does not include the 10 dB penalty for nighttime noise that is included in the calculation of the DNL metric. Therefore, it also seems that the DSREIR is now abandoning the only factor in its analysis that was addressing the significant concern of nighttime noise impact on sensitive residences.

Therefore, due to the aforementioned problems, the DSREIR and proposed mitigation measures MM 4.12-1 and MM 4.12-2 are still insufficient and need to be revised. The necessary revision is illustrated below.

In Tables 1 and 2, the distances highlighted in grey and italicized are copied from the DSREIR (Tables 4.12-8 and 4.12-13). Other distances are calculated based on the DSREIR noise levels and standard propagation rates used in the DSREIR.

Table 1: Estimated Distances to **Leq** Noise Level Contour from DSREIR

Project Activity	Distance (feet) to Leq Contour				
	65 dB Leq	60 dB Leq	55 dB Leq	50 dB Leq	49 dB Leq
Well Production (Electric Power)	30	60	<i>110</i>	<i>180</i>	198
Well Production (Diesel Power)	100	180	<i>330</i>	<i>580</i>	650
Drilling (Well Advancement)	670	1200	<i>2270</i>	<i>3550</i>	3900
Drilling (Pull Out of Well Borehole)	390	700	<i>1300</i>	<i>2130</i>	2350
Large-Scale Exploratory Drilling	1390	2470	<i>4750</i>	<i>7250</i>	7900
Well Workover (Maintenance)	400	720	<i>1350</i>	<i>2150</i>	2355
Well Stimulation (Hydraulic Fracturing)	500	890	<i>1650</i>	<i>2700</i>	2965

The distances highlighted in yellow and bold text in Table 1 above are incorporated into Mitigation Measures MM 4.12-1 and 4.12-2 as “Minimum Trigger Distances” which trigger additional study and the implementation of noise reduction measures to meet the Project Noise Standard. These are incorrectly based on the Leq of construction and operational noise sources.

Table 2: Estimated Distances to **DNL** Noise Level Contour from DSREIR

Project Activity	Distance (feet) to DNL Contour				
	DNL 65 dB	DNL 60 dB	DNL 55 dB	DNL 50 dB	DNL 49 dB
Well Production (Electric Power)	<i>80</i>	<i>130</i>	230	410	460
Well Production (Diesel Power)	<i>210</i>	<i>340</i>	600	1080	1210
Drilling (Well Advancement)	<i>1550</i>	<i>2500</i>	4450	7910	8870
Drilling (Pull Out of Well Borehole)	<i>820</i>	<i>1320</i>	2350	4170	4680
Large-Scale Exploratory Drilling	<i>3270</i>	<i>5270</i>	9370	16670	18700
Well Workover (Maintenance)	<i>930</i>	<i>1500</i>	2670	4740	5320
Well Stimulation (Hydraulic Fracturing)	<i>1090</i>	<i>1760</i>	3130	5570	6240

The distances highlighted in yellow and bold text in Table 2 above should be used to replace the “Minimum Trigger Distances” which trigger additional study and the implementation of noise reduction measures to meet the Project Noise Standard. These are correctly based on the DNL of construction and operational noise sources. With this corrected protocol, noise reduction measures would be properly implemented so that Project noise does not increase ambient (DNL) noise levels by more than 5 dB at all sensitive receptors, including the quieter ones.

1b. Related Comments on Technical Memo from WSP (dated 15 October 2020)

In their technical memorandum to the County of Kern, WSP makes statements related to our concerns of the noise metric used to develop the “Mitigation Trigger Distances.” WSP goes through a lengthy discussion to confirm the validity of using the DNL metric for the noise impact analysis, largely because it is adopted by the County of Kern and other agencies and because it includes a 10-dB penalty for nighttime noise, which is a significant concern for this Project due to the expectation for nighttime construction and operational activities. This discussion culminates in the excerpt provided below:

Because this standard is adopted in the Kern County General Plan, it is appropriate for the County to use the DNL metric to assess noise impacts in its EIR. The use of the noise metric DNL in Kern County’s EIR is further supported by the use of similar metrics in federal, state and local noise reports and noise codes. At the federal level, the Federal Interagency Committee on Urban Noise developed land use compatibility guidelines using DNL as the common descriptor for noise levels, which have been incorporated throughout the federal regulatory system. Today, the Federal Transit Authority, Federal Railway Authority, and Federal Aviation Authority all use the metric. At the state level, the California Department of Health Services endorses the use of either DNL or the Community Noise Level (CNEL). Similarly, Government Code section 65302(f) requires local planning documents utilize either DNL or CNEL. DNL has been endorsed as an appropriate measure because it not only accounts for noise levels throughout a 24-hour period but adds 10 dB to nighttime (10 p.m. to 7 a.m.) noise levels. The 10-dB penalty applied during the nighttime hour accounts for increased sensitivity to noise exposure occurring during nighttime hours, and therefore addresses the potential for sleep disturbance. [excerpt Technical Memorandum from WSP to County of Kern, 15 October 2020, Page 5, Paragraphs 1 & 2]

We agree with the above statements from WSP and recommend that DNL be used as the basis for the noise impact analysis and mitigation plans for additional study and implementation of noise reduction measures. However, later in the memorandum, WSP appears to support the DSREIR’s use of the Leq metric in establishing mitigation “trigger” distances, thus contradicting their own statements on the appropriateness of the DNL metric made earlier in the memo. These statements are excerpted below:

In order to ensure that applicants do not exceed the County’s incremental threshold, these setback distances should be revised. The option evaluated in this memorandum was to base the default setback distances on the allowable project noise level at the lowest ambient noise level measured in the 2015 Environmental Noise Assessment. This was 44.8 dB. [NOTE: THIS WAS DNL 44.8 dB, see DSREIR Table 4.12-3] Based on the 5 dB incremental standard, project noise could reach approximately 49 dB Leq (48.8 dB) without resulting in an exceedance. The Leq metric is appropriate for the screening distances in light of the very conservative measurement and modeling methodologies used by the consultants in the 2015 FEIR. The Leq is the equivalent sound pressure level and is commonly used to measure steady state sound or noise and as such represents the sound as actually experienced by the sensitive receptor. [excerpt Technical Memorandum from WSP to County of Kern, 15 October 2020, Page 6, Paragraph 1]

In conflict with prior statements, WSP seems to endorse the use of the Leq metric to develop screening distances with virtually no explanation why it is appropriate or acceptable. They state that using Leq in

this manner is “appropriate” due to the “very conservative measurement and modeling methodologies used by the consultants.” However, this statement is unsubstantiated. It is not well established or explained how the “measurement and modeling methodologies” are conservative. Furthermore, even if they are conservative, this does not give license to make the error of switching from the DNL to the Leq metric, which is a significant change, by just assuming that it is “covered” by the “conservative” nature of work/analysis up to that point. Instead, it is our opinion that:

1. By switching from the DNL metric to the Leq metric, WSP and the DSREIR are effectively abandoning the special consideration for nighttime noise from construction and operation in identifying the screening distances, labeled “Mitigation Trigger Distances.”
2. By switching to the Leq metric and thus offering shorter screening distances as “Mitigation Trigger Distances,” WSP and the DSREIR are potentially missing the identification of and implementation of noise reduction measures at some of the quietest existing receptors that could be impacted by noise (i.e., sensitive receptors with ambient noise levels between DNL 45 dB and DNL 50 dB).
3. Screening distances should be conservative to avoid missing sensitive receptors that could be impacted by excessive noise.
4. We recommend that all potentially impacted sensitive receptors be included in the screening procedures. The additional studies “triggered” by these screening procedures are reasonable and appropriate. If it is found that sensitive receptors would not be impacted due to mitigating conditions such as shielding from terrain or elevated ambient noise levels, the applicant should be able to identify these conditions and justify the development with little to no further efforts. However, eliminating some sensitive receptors entirely from further analysis by using inadequate screening distances for this study area is not a justifiable approach by the DSREIR.
5. It remains improper for the DSREIR to compare the Project Leq noise levels to the ambient DNL levels. If the analysis remains based on the Leq metric to evaluate nighttime noise levels, it would be appropriate instead to compare construction and operational Leq noise levels to the nighttime ambient Leq noise levels which were measured in the 2015 Environmental Noise Assessment. Measured nighttime hourly Leq noise levels were as low as 28.8 dB, far below the lowest DNL level of 44.8 dB (see DSREIR Table 4.12-3). This Leq 28.8 dB noise level would be compared to the benchmark Leq 49 dB established by the DSREIR as the basis for the “Mitigation Trigger Distances.”

The technical memorandum from WSP (dated 15 October 2020) fails to justify the use of the Leq metric in establishing the current “Mitigation Trigger Distances” proposed in the DSREIR. Therefore, we reassert that the DSREIR and proposed mitigation measures MM 4.12-1 and MM 4.12-2 are still insufficient and need to be revised.

2. Mitigation Measures Should Clearly Specify the DNL Noise Metric

The impact analyses of the Noise Section of the EIR are to be performed in accordance with City and County noise standards that are based on the noise metric “DNL” (Day-Night Average Noise Level). This is a 24-hour average level that includes a penalty for nighttime noise due to human sensitivity during sleep hours. However, in the mitigation section, the noise metric is not consistently or clearly stated. The noise levels and established “Noise Standard” are simply identified as a level in decibels (e.g., 65 dB). Mitigation

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Measures MM 4.12-1 and MM4.12-2 should be revised so that stated noise levels and standards are clearly identified using the DNL metric (e.g., DNL 65 dB).

0059-56

3. Mitigation Should Clearly Specify Ambient Noise Measurements/Protocols

The current language of the DSREIR mitigation measures (MM 4.12-1 and 4.12-2) state that an Acoustic Noise Reduction Report is to include ambient noise levels at sensitive receptors located within the “Mitigation Trigger Distance” for each construction or operational activity. The mitigation measure should clearly state that applicants for development must measure ambient noise levels at sensitive receptors. In addition, basic measurement protocols should be established. Since the analysis is to be based on the DNL (Day-Night Average Noise Level), that metric should be measured. In addition, the DNL should be measured over a statistically valid number of days to determine a “typical” baseline. For example, ambient noise levels could be measured for no less than 72 hours at each site. This is reasonable with modern instrumentation. The arithmetic average of the three DNL’s from the three 24-hour periods should be used as the baseline. An “outlier” day found to have a higher level due to non-typical activity (e.g., emergency vehicle sirens) should be rejected.

4. Monitoring is Only Implemented for Construction

0059-57

Mitigation Measure MM 4.12-1 address construction noise. It requires that noise levels be monitored at sensitive receptors during the construction phase. This is appropriate. However, Mitigation Measure MM 4.12-2 does not require any monitoring or measurements of operational noise to verify compliance with the Noise Standard (a limit of 5 dB above previous ambient DNL noise levels). Since it is operational noise that residents and other sensitive receptors will be living with in perpetuity, it would also seem appropriate to perform a measurement of operational noise (e.g., an operating well) once the installation of the equipment and noise reduction measures are complete. The measurements should be specified with at the nearest potentially impacted sensitive receptors with appropriate protocols to document compliance with the Noise Standard.

CONCLUSION

0059-58

As demonstrated above, the revised DSREIR does not fully address our concerns. In our professional opinion, the DSREIR’s noise impact analysis and mitigation measures still do not adequately address potential noise impacts. The DSREIR should be further updated to address the quieter sensitive noise receptors by resolving the mix-up of noise metrics.

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Exhibit DSREIR 7

Phyllis Fox, Ph.D., PE
745 White Pine Ave.
Rockledge, FL 32955

Kevin P. Bundy
Shute, Mihaly & Weinberger LLP
396 Hayes Street
San Francisco, CA 94102-4421

Dear Mr. Bundy:

I commented on the air quality analysis contained in the Final Environmental Impact Report (FEIR) for revisions to Kern County Zoning Ordinance – 2015(C) focused on oil and gas permitting.¹ I also commented on the cumulative health risk assessment for this FEIR, which originally was released 5 days prior to the public hearing on the FEIR, and was subsequently recirculated with a Draft Supplemental Recirculated Environmental Impact Report in August 2020 (Aug. DSREIR).²

In October 2020, Kern County released a revised version of the Draft Supplemental Recirculated Environmental Impact Report (Oct. DSREIR).³ In this letter, I address mitigation to assure that the well density assumed in the cumulative health risk assessment (HRA) is achieved and enforceable.

MITIGATION FOR WELL DENSITY

The HRA in the FEIR and in Appendix B of Oct. DSREIR assumed 48 wells would be drilled in concentric circles around a sensitive receptor, resulting in 0.02 wells per acre, a very low number.⁴ My research demonstrated that well density in existing

¹ Phyllis Fox, Report on Final Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C), Focused on Oil and Gas Local Permitting, November 6, 2015 (Fox FEIR Comments), Administrative Record (“AR”) Bates 155605-155686.

² Letter from Phyllis Fox to Rachael Hooper, Shute, Mihaly & Weinberger LLP, September 11, 2020.

³ Kern County Planning and Natural Resource Department, Draft Supplemental Recirculated Environmental Impact Report (October 2020), Revisions to Title 19-Kern County Zoning Ordinance – (2020A), Focused on Oil and Gas Local Permitting, SCH# 2013081079, October 2020;
<https://kernplanning.com/environmental-doc/oil-and-gas-sreir/>.

⁴ Environmental Compliance Solutions, Technical Memorandum on Health Risk Assessments, Kern County Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020A, Oil and Gas Local Permitting, October 2020 (HRA Technical Memorandum, Oct. 2020), Appendix B-1 to the Oct. DSREIR;
https://psbweb.co.kern.ca.us/UtilityPages/Planning/EIRS/OG_SREIR/aVol2/Oil_Gas_SREIR_Oct%202020_Vol%202_Appendices%20A%20through%20E.pdf.

Kern County oil fields is substantially higher.⁵ Thus, I concluded that health risks were significantly underestimated. In my comments on the FEIR, I noted that the FEIR did not contain any conditions that would assure that the 0.02 wells per acre density assumed in the CHRA would be achieved in practice.⁶

The Oct. DSREIR also fails to include any conditions that would limit well density to 0.02 wells per acre.⁷ Instead, the HRA Technical Memorandum argues that "Because....the risk driver for the HRA is drilling, what matters for density is not how many wells could be located in close proximity but how many could be drilled in close proximity over a short period of time (such that the same sensitive receptor would be affected by their emissions)." However, there are at least two additional problems with this argument.

First, the Oct. DSREIR asserts that "there have historically been between 4 to 12 drill rigs in the County and, since April 2020, there have only been 3 to 4 drill rigs operating in Kern County, that this number is unlikely to increase in the near future given oil and gas production activities, and that this scenario would require all 8 of the theoretical rigs to be drilling in the same place for an entire year..."⁸ However, if this Project is approved, it would open the door for a substantial increase in well drilling in Kern County. It is simply not believable that drilling contractors would not seize on this opportunity to increase the number of available drill rigs.

Second, well drilling occurs over a short period of time compared to well operation. Significant cancer impacts occur from long-term exposures, while acute and chronic impacts occur from short-term exposures. Emissions from on-site stationary source equipment, routine well operation, well maintenance etc. occur continuously over a much longer period of time and likely would result in more significant cancer impacts than short-term drilling. If the well density were much higher than assumed in the HRA, emissions from other sources besides drilling would be higher. Nearby sensitive receptors would be exposed to hazardous air pollutants from routine well operation, well maintenance, and fugitive sources continuously, over the life of each well or group of wells, not just during short-term drilling, resulting in much greater cancer impacts than revealed in the Oct. DSREIR. Thus, if well density is underestimated, as here, cancer impacts from all sources over the life of the Project would be substantially higher than disclosed in the Oct. DSREIR.

⁵ Fox FEIR Comments, AR Bates 155682.

⁶ Fox FEIR Comments, AR Bates 155684.

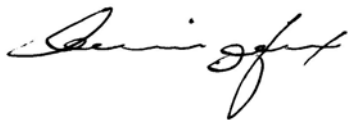
⁷ HRA Technical Memorandum, Oct. 2020, p. 5.

⁸ Ibid., p. 5.

Thus, to assure that health risks are no larger than disclosed in the Oct. DSREIR, mitigation should be imposed to assure that well density is limited to 0.02 wells per acre unless it is documented there are no sensitive receptors near any of the wells. I recommend the following mitigation measures:

1. Well drilling in a given area shall be limited to 0.02 wells per acre.
2. A drilling plan for each well or group of wells shall be prepared that includes a map that (1) locates all proposed wells; (2) provides well location coordinates and well depth, (3) locates all sensitive receptors (e.g., residences, schools, parks, medical facilities, or commercial properties within 5 miles of all proposed wells, (4) identifies all drill rigs that will be used; (5) establishes enforceable emission limits on HAPs, NO_x, SO_x, VOC, CO, PM₁₀, and PM_{2.5} for all drill rigs that will be used; and (6) requires testing of each drill rig prior to and during use to confirm that it meets the emission rates assumed in the Oct. DSREIR. The drilling plan shall be approved by both Kern County and the SJVAPCD before the start of drilling.
3. A California licensed environmental professional (e.g., QEP, CIH, CEP)⁹ and a California licensed civil engineer shall review the drilling plan, survey the site, and stamp and seal an attachment to the drilling plan that confirms that there are no more than 12 wells located 1/8 mile away from sensitive receptors, no more than 12 wells located 3/4 of a mile away from sensitive receptors, and no more than 12 wells located 1 mile away from sensitive receptors.
4. A California licensed civil engineer shall be present on site during all well drilling and shall confirm by signature and seal that the drilling plan is implemented as proposed. The subject engineer shall have authority to halt drilling if violations of the drilling plan are observed until the violations are cured. All deviations shall be reported to Kern County and the SJVAPCD.

Sincerely,



Phyllis Fox, Ph.D., PE

⁹ QEP = qualified environmental professional, certified by The Institute of Professional Environmental Practice; CIH = certified industrial hygienist, certified by the American Board of Industrial Hygiene; CEP = certified environmental professional certified by the National Association of Environmental Professionals.

Exhibit DSREIR 8

33 B. Except as shown in Exhibit B, the Property is open farmland, whose soils
34 have been classified as predominantly prime farmland by the U.S. Department of
35 Agriculture's Natural Resources Conservation Service, and by the California Department
36 of Conservation's Farmland Mapping and Monitoring Program, because the Property has
37 the soil quality, growing season, and water supply needed for sustained agricultural
38 production. The agricultural and other characteristics of the Property, its current use and
39 state of improvement, are documented and described in a Baseline Documentation Report
40 ("Baseline Report"), prepared by the Grantee with the cooperation of the Grantor and
41 incorporated herein by this reference. The parties acknowledge that the Baseline Report
42 is complete and accurate as of the date of this Easement. Both the parties shall retain
43 duplicate original copies of the Baseline Report. The Baseline Report may be used to
44 establish whether or not a change in the use or condition of the Property has occurred, but
45 its existence shall not preclude the use of other evidence to establish the condition of the
46 Property as of the date of this Easement.

47
48 C. The Department of Conservation's California Farmland Conservancy
49 Program (hereinafter referred to as the "Department" or "Department of Conservation")
50 has made a grant of funds to the Grantee to support the acquisition of this Agricultural
51 Conservation Easement. The Department's funds represent a substantial investment by
52 the people of the State of California in the long-term conservation of valuable agricultural
53 land and the retention of agricultural land in perpetuity. The Property and this Easement
54 have met the California Farmland Conservancy Program's mandatory eligibility criteria
55 and certain selection criteria and have multiple natural resource conservation objectives.
56 The rights vested herein in the State of California arise out of the State's statutory role in
57 fostering the conservation of agricultural land in California and its role as fiduciary for
58 the public investment represented here. The Easement is being funded primarily by the
59 Department and agricultural mitigation funds collected by the Grantee in Kern County.

60
61 D. The Grantor grants this Easement for valuable consideration to the
62 Grantee for the purpose of assuring that, under the Grantee's perpetual stewardship, the
63 agricultural productive capacity and open space character of the Property will be
64 conserved and maintained forever, and that uses of the land that are inconsistent with
65 these conservation purposes will be prevented or corrected. The parties agree, however,
66 that the current agricultural use of, and improvements to, the Property are consistent with
67 the conservation purposes of this Easement.

68
69 E. The conservation purposes of this Easement are recognized by, and the
70 grant of this Easement will serve, the following clearly delineated governmental
71 conservation policies:

- 72
73 1. The Farmland Protection Policy Act, P.L. 97-98, 7 U.S.C. Section 4201, et
74 seq., whose purpose is "to minimize the extent to which Federal programs
75 and policies contribute to the unnecessary and irreversible conversion of
76 farmland to nonagricultural uses, and to assure that Federal programs are
77 administered in a manner that, to the extent practicable, will be compatible

with State, unit of local government and private programs and policies to protect farmland;"

2. California Civil Code Section 815, which defines perpetual conservation easements;
3. California Constitution Article XIII, Section 8, California Revenue and Taxation Code Sections 421.5 and 422.5, and California Civil Code Section 815.1, under which this Easement is an enforceable restriction, requiring that the Property's tax valuation be consistent with restriction of its use for purposes of food and fiber production and conservation of natural resources.
4. California Public Resources Code Section 10200, et seq., which creates the California Farmland Conservancy Program within the Department;
5. California Government Code Section 51220, which declares a public interest in the preservation of agricultural lands;
6. The California General Plan law Section 65300, et seq., California Government Code Section 65400, et seq., and the Kern County General Plan, as updated on 2007, which includes as one of its goals to protect all viable farmlands designated as prime, of statewide importance, unique, or of local importance from conversion to and encroachment of non-agricultural uses; and,
7. Resolution No. 2009-237, approved by the Board of Supervisors of Kern County on the 30th of June, 2009, which expresses support for the acquisition of this Easement and that the acquisition is consistent with the County's General Plan.

F. The Grantee is a California nonprofit organization within the meaning of California Public Resources Code Section 10221 and California Civil Code Section 815.3 and is a tax exempt and "qualified conservation organization" within the meaning of United States Internal Revenue Code Sections 501(c)(3) and 170(b)(1)(A)(iv).

GRANT OF AGRICULTURAL CONSERVATION EASEMENT

Now, therefore, for the reasons given, and in consideration of their mutual promises and covenants, terms, conditions and restrictions contained herein, and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Grantor voluntarily grants and conveys to the Grantee, and the Grantee voluntarily accepts, a perpetual conservation easement, as defined by California Civil Code Section 815.1 and California Public Resources Code Section 10211, and of

the nature and character described in this Easement for the purpose described below, and agree as follows:

1. Purpose.

The conservation purposes (the "Purpose") of this Easement are to enable the Property to remain in productive agricultural use by preventing uses of the Property prohibited by the provisions of this Easement or that will impair or interfere with the Property's agricultural productive capacity, its soils, and its agricultural character, values, and utility. To the extent that the preservation of the open space character of the Property is consistent with such use, it is within the Purpose of this Easement to protect those values.

2. Right to Use Property for Agricultural Purposes.

The Grantor retains the right to use the Property for agricultural purposes, or to permit others to use the Property for agricultural purposes, in accordance with applicable law as long as the agricultural productive capacity and open space character of the Property are not thereby significantly impaired.

The parties acknowledge and agree that the Purpose permits changes in farming techniques necessary or desirable to maintain economically viable farming operations. Accordingly, except as specifically limited herein, the Grantor is not limited to those farming techniques currently known or foreseeable, but rather the Grantor may use new or different farming techniques that are consistent with this Easement.

3. Prohibited Uses.

The Grantor shall not perform, nor knowingly allow others to perform, any act on or affecting the Property that is inconsistent with this Easement. Any use or activity that would diminish or impair the agricultural productive capacity and open space character of the Property or that would cause significant soil degradation or erosion is prohibited. This Easement authorizes the Grantee to enforce these covenants in the manner described herein. However, unless otherwise specified, nothing in this Easement shall require the Grantor to take any action to restore the condition of the Property after any Act of God or other event over which it had no control. The Grantor understands that nothing in this Easement relieves it of any obligation or restriction on the use of the Property imposed by law.

4. Permission of the Grantee.

Where the Grantor is required to obtain the Grantee's permission or approval for a proposed action hereunder, said permission or approval (a) shall not be unreasonably delayed by the Grantee, (b) shall be sought and given in writing, with copies of all documents to be provided to the Department, and (c) shall in all cases be obtained by the Grantor prior to taking the proposed action. In seeking approval, the Grantor will provide the Grantee with adequate information, documents and plans, so as to enable the Grantee to

confirm compliance with this Easement and to keep its records current. The Grantee shall grant permission or approval to the Grantor only where the Grantee, acting in the Grantee's sole reasonable discretion and in good faith, determines that the proposed action will not significantly diminish or impair the agricultural productive capacity and open space character of the Property and would not cause significant soil degradation or erosion. If, in the judgment of the Grantee, the proposed use or activity should not be permitted in the form proposed, but could be permitted if modified, then the Grantee's response shall propose to the Grantor the suggested modification(s) and/or conditions that would permit the use or activity. If the Grantor disagrees with the Grantee's decision, the parties may agree to mediate the disagreement.

5. Construction or Placement of Buildings and Other Improvements.

The Grantor may undertake construction, demolition, erection, installation, placement, rebuilding, or remodeling of buildings, structures, or other improvements on the Property only as provided in Sections 5(a) through (d), inclusive. All other construction, erection, installation, or placement of buildings, structures, or other improvements on the Property is prohibited. Before undertaking any construction, erection, installation or placement that requires advance permission, the Grantor shall notify the Grantee and obtain prior written permission from the Grantee.

For purposes of this section, "improvements" shall not refer to trees, vines, or other living improvements planted for agricultural purposes, nor shall it refer to irrigation improvements necessary or desirable to irrigate the Property for agricultural purposes, all of which may be made without the permission of the Grantee.

(a) *Fences* – Existing fences may be constructed, demolished, erected, installed, placed, rebuilt, or remodeled without permission from the Grantee. New fences may be built anywhere on the Property for purposes of reasonable and customary agricultural management, and for security of farm produce, livestock, equipment, and improvements on the Property, without permission from the Grantee. Fences within the Residential Envelope specified in Section 5(c) may be constructed without prior permission of the Grantee.

(b) *Agricultural Structures and Improvements* – Existing agricultural improvements as shown in Exhibit B, if any, may be demolished, rebuilt, remodeled, reasonably enlarged, and replaced at their current locations for agricultural purposes without further permission from the Grantee. New buildings and other structures and improvements to be used solely for agricultural production on the Property or sale of farm products predominantly grown or raised on the Property, including barns and equipment sheds, but not including any dwelling or farm labor housing, may be built, constructed, erected, installed or placed on the Property within either the one-acre Farmstand Envelope or the ten-acre Residential Envelope, without further permission of the Grantee. All permissible new agricultural structures may be demolished, rebuilt, remodeled, reasonably enlarged, and replaced, all without permission from the Grantee.

Other agricultural production or marketing-related structures may be constructed outside the Farmstand Envelope and the Residential Envelope only with the written permission of the Grantee pursuant to Section 4.

(c) *Single-Family Residential Dwelling* – Currently there are no residential dwellings on the property. With permission of the Grantee pursuant to Section 4, one (1) single family residential dwelling with customary ancillary structures, including, but not limited to, mother-in-law unit, gazebo and garage may be built, constructed, erected, installed or placed entirely within Residential Envelope. No other residential dwelling may be built, constructed, erected, installed or placed on the Property (except as provided in Section 5(d)). If it is to be rebuilt within its existing footprint, the single family residential dwelling may be demolished and rebuilt subject to giving Grantee at least thirty (30) days prior written notice of Grantor's intent. If it is to be rebuilt or remodeled outside its existing footprint, the single family residential dwelling may be demolished and, rebuilt subject to obtaining Grantee's permission pursuant to Section 4. If it is either to be remodeled within its existing footprint or for ordinary maintenance, repairs and servicing, Grantor may do the foregoing to the single family residential dwelling without the need of either giving prior notice to or obtaining the prior consent of Grantee.

(d) *Agricultural Employee Housing* - Agricultural employee housing may be built, constructed, erected, installed or placed on the Property only with the advance written permission of the Grantee pursuant to Section 4 and only if the Grantor can demonstrate to the Grantee's satisfaction that such agricultural employee housing is reasonable and necessary for the agricultural operation of the Property. Any agricultural employee housing must be located entirely within the Residential Envelope. The total aggregate living area of new agricultural employee housing shall not exceed 2,500 (two thousand five hundred) square feet in size. If it is to be rebuilt within its existing footprint, the agricultural employee housing may be demolished and rebuilt subject to giving Grantee at least thirty (30) days prior written notice of Grantor's intent. If it is to be rebuilt or remodeled outside its existing footprint, the agricultural employee housing may be demolished and, rebuilt subject to obtaining Grantee's permission pursuant to Section 4. If it is either to be remodeled within its existing footprint or for ordinary maintenance, repairs and servicing, Grantor may do the foregoing to the agricultural employee housing without the need of either giving prior notice to or obtaining the prior consent of Grantee.

(e) *Utility Services and Septic Systems* -- Wires, lines, pipes, cables or other facilities providing electrical, gas, water, sewer, communications, or other utility services solely to and serving the improvements permitted herein may be built, constructed, demolished, erected, installed, maintained, placed, repaired, removed, relocated and replaced without permission from the Grantee. Septic or other underground sanitary systems serving the improvements permitted herein

may be built, constructed, demolished, erected, installed, maintained, placed, repaired, removed, relocated and replaced without permission from the Grantee, and shall be placed within the Residential Envelope, where possible.

(f) *Recreational Improvements* -- Private recreational improvements (including, but not limited to swimming pool, tennis court, etc.) for the personal, non-commercial use of the Grantor and the Grantor's family and guests are permitted within the Residential Envelope. Private recreation improvements permitted herein may be built, constructed, demolished, erected, installed, improved, placed, rebuilt, or remodeled without permission from the Grantee.

(g) *Solar Power Generation Equipment* -- Solar power generation equipment may be built, constructed, erected, installed or placed within the Farmstand Envelope and Residential Envelope, or within a one hundred foot (100') radius of a water pump station, with the Grantee's prior permission pursuant to Section 4. However, under no circumstances shall a solar power generation facility with the primary purpose of producing energy for sale to third parties be granted pursuant Section 4. All permissible solar generation equipment may be demolished, rebuilt, remodeled, reasonably enlarged, and replaced, with prior permission from the Grantee.

(h) *Water Pump Station* -- The Grantor may drill new water pump stations on the Property for agricultural and domestic uses with the Grantee's prior approval. All permissible new water pump stations may be demolished, rebuilt, remodeled, reasonably enlarged, and replaced, all without permission from the Grantee.

6. *Subdivision.*

The division, subdivision, defacto subdivision, or partition of the Property, including transfer of development rights, whether by physical, legal, or any other process, is prohibited.

The Grantor agrees the Property has one (1) existing legal parcel, and that no additional, separate legal parcels currently exist within the Property that may be recognized by a certificate of compliance pursuant to California Government Code Section 66499.35 based on previous patent or deed conveyances, subdivisions, or surveys. The Grantor will not apply for or otherwise seek recognition of additional legal parcels within the Property based on certificates of compliance or any other authority. The Grantor shall continue to maintain the legal parcel comprising the Property, and all interests therein, under common ownership.

Lot line adjustment may be permitted solely with the prior written approval of the Grantee pursuant to Section 4, and for purposes of maintaining, enhancing or expanding agricultural practices or productivity on the Property. The Grantor shall take no steps towards lot line adjustment unless and until the Grantee approves the request.

7. *Development Rights.*

The Grantor hereby grants to the Grantee all development rights except as specifically reserved in this Easement, that were previously, are now or hereafter allocated to, implied, reserved, appurtenant to, or inherent in the Property, and the parties agree that such rights are released, terminated, and extinguished, and may not be used on or transferred by either party to any portion of the Property as it now or later may be bounded or described, or to any other property adjacent or otherwise, or used for the purpose of calculating permissible lot yield of the Property or any other property. This Easement shall not create any development rights.

8. *Mining.*

To the extent not previously conveyed, Grantor hereby reserves to itself, its heirs, successors and assigns, all interest in minerals, gas, oil and other hydrocarbon products found or to be found in, on or under the Property (collectively the "Mineral Rights"). Grantor further reserves the right to convey, lease, develop and otherwise extract said minerals, gas, oil or related hydrocarbon products. To the extent Grantor owns any of the Mineral Rights, or acquires any of the Mineral Rights in the future, the right of Grantor, its lessee or any other persons exploring for, developing or extracting said minerals, gas, oil or related hydrocarbon products pursuant to Grantor's interest, if any, in said minerals, gas, oil, or related hydrocarbon products, shall be subject to the following:

(A) Surface Mining; Strip Mining. The following activities are prohibited on the Property:

(1) Exploration or extraction of minerals, gas, oil or related hydrocarbon products by any surface mining method within the meaning of Section 170(h)(5)(B) of the IRS Code and the regulations promulgated thereunder,

(2) Exploration or extraction of minerals, gas, oil or related hydrocarbon products by any surface mining method if such activity would, in the sole judgment of Grantee, result in the long-term destruction of the Purpose, or

(3) Exploration or extraction of minerals, gas, oil or related hydrocarbon products by any surface strip mining method.

(B) Exploratory Well Site; Permanent Well Site. Notwithstanding the above paragraph, the following shall be permitted on the Property:

(1) The actual drilling of a well in the ground for exploratory purposes ("Exploratory Well Site"). Activities on the Exploratory Well Site shall be limited to a temporary period of not to exceed one hundred eighty (180) days, and, during such one hundred and eighty (180) -day period, shall not occupy an

area exceeding three acres. The Exploratory Well Site shall be in an area suitable to Grantor and the mineral exploration company.

(2) The actual drilling of a well in the ground for subsurface extraction activities ("Permanent Well Site") shall be limited to a one (1)-acre site. The Permanent Well Site shall be located within the area previously designated as the Exploratory Well Site.

(3) Upon completion of Permanent or Exploratory Well Site activities, the Protected Property shall be restored to a condition similar or equivalent to its topographical state prior to the disturbance from the respective Permanent or Exploratory Well Site through methods including, but not limited to, restoring soils and replanting suitably adapted vegetation. The sufficiency of any site restoration shall be subject to Grantee approval.

(C) Water. No water shall be utilized in connection with any Exploratory or Permanent Well Site activity that would cause interference with the surface water rights of Grantor or the wells, streams or any other sources of water that currently exist on the Property.

(D) Wastewater. Any wastewater resulting from Exploratory or Permanent Well Site activities that is of poorer quality than the existing water supplies shall be treated or removed from the Property.

(E) Access to Well Sites: Whenever possible, access to Exploratory or Permanent Well Sites shall be by existing roads. Any new road shall conform to Section 9 of this Easement.

The parties acknowledge that as of the Effective Date of this Easement Grantor does not own any of the Mineral Rights.

9. Paving and Road Construction.

Other than existing roads shown within the Residential Envelope as identified in the Baseline Report, no portion of the Property presently unpaved shall be paved or otherwise covered with concrete, asphalt, or any other paving material, unless such measures are required by air quality laws or regulations applicable to the Property, and except for a paved driveway to and within the Residential Envelope utilizing the most direct route from a public road, no road for access or other purposes shall be constructed without the permission of the Grantee pursuant to Section 4. Notwithstanding the foregoing, construction of unpaved farm roads, as required by agricultural operations, is permitted without permission from the Grantee. The Grantor shall notify the Grantee of any relocation or addition of unpaved farm roads.

10. Trash and Storage.

The dumping or accumulation on the Property of any kind of trash, refuse, vehicle bodies or parts, or "Hazardous Materials," as defined in Section 25 is prohibited. Farm-related trash and refuse produced on the Property, may be temporarily stored on the Property subject to all applicable laws. The storage of agricultural products and byproducts produced on the Property and materials reasonably required for agricultural production on the Property including Hazardous Materials is permitted as long as it is done in accordance with all applicable government laws and regulations.

11. *Commercial Signs.*

Commercial signs (including billboards) unrelated to permitted activities conducted on the Property are prohibited.

12. *Recreational Uses.*

Commercial recreational structures or facilities are prohibited on the Property. Recreational structures or improvements for the personal use of the Grantor and its guests and invitees (e.g. swimming pool, tennis court) are permitted within the Residential Envelope pursuant to Section 5(f). The use of motorized vehicles off roadways and outside of the Residential Envelope is prohibited, except where used for agricultural production, property maintenance and security, or for the purpose of monitoring this Easement. Motorized vehicle use off roadways shall be carried out in a manner which does not diminish or impair the agricultural productive capacity and open space character of the Property or cause significant soil degradation or erosion.

13. *Water Rights.*

The Grantor shall retain and reserve all ground water, and all appropriative, prescriptive, contractual or other water rights appurtenant to the Property at the time this Easement becomes effective. The Grantor shall not permanently transfer, encumber, lease, sell, or otherwise separate such quantity of water or water rights from title to the Property itself. No permanent separation of water or water rights shall be permitted. All water shall be retained on the Property for domestic and agricultural beneficial uses, and shall only be used in conjunction with the Buildings and Improvements permitted pursuant to Section 5 of this Easement except in the following circumstances:

(A) Distribution Off Property. The Grantor may distribute water for use upon other property owned or leased by the Grantor, or contiguous property on an annual basis, but only for agricultural production and only within Kern County, so long as such distribution is consistent with, and does not otherwise interfere with the Purpose of this Easement.

(B) Annual Transfers of Excess Water. If, in any year, water in excess of the water needed to fulfill the Purpose of this Easement is available on the Property, Grantor may, upon the consent and at the sole discretion of Grantee, transfer such excess water

only for use upon lands located solely within the jurisdictional boundaries of the North Kern Water Storage District, so long as such excess water is used for agricultural production or open space preservation purposes, and the transfer of such excess water does not interfere with the Purpose of this Easement or otherwise adversely impact the long-term agricultural productive capacity or open space character of the Property.

(C) The Grantor shall annually obtain the permission of the Grantee to distribute or temporarily transfer water off the Property as contemplated by Subsections (A) and (B) of this Section. Permission by Grantee shall not be unreasonably withheld. Such permission from the Grantee to the Grantor shall be effective for no more than one hundred and eighty (180) days from the date such permission is delivered to the Grantor.

The Grantor retains the right to use, maintain, establish, construct, and improve water sources, water courses and water bodies, including, but not limited to, drilling water wells, within the Property for the uses permitted by this Easement, provided that the Grantor does not significantly impair or disturb the natural course of the surface water drainage or runoff flowing over the Property. The Grantor may alter the natural flow of water over the Property in order to improve drainage of agricultural soils, reduce soil erosion, or improve the agricultural management potential of the Property without permission from the Grantee, provided such alteration is consistent with the Purpose of this Easement.

14. *Rights Retained by the Grantor.*

Subject to Section 7 and to interpretation under Section 22, as owner of the Property, the Grantor reserves all interests in the Property not transferred, conveyed, restricted or prohibited by this Easement. These ownership rights include, but are not limited to, the right to sell, lease, or otherwise transfer the Property to anyone the Grantor chooses, as well as the right to privacy, the right to exclude any member of the public from trespassing on the Property, and any other rights consistent with the Purpose of this Easement. Nothing contained herein shall be construed as a grant to the general public of any right to enter upon any part of the Property.

15. *Responsibilities of the Grantor and the Grantee Not Affected.*

Other than as specified herein, this Easement is not intended to impose any legal or other responsibility on the Grantee, or in any way to affect any existing obligation of the Grantor as owner of the Property. Among other things, this shall apply to:

(a) *Taxes* – The Grantor shall be solely responsible for payment of all taxes and assessments levied against the Property. If the Grantee ever pays any taxes or assessments on the Property, or if the Grantee pays levies on the Grantor's interest in order to protect the Grantee's interests in the Property, the Grantor will reimburse the Grantee for the same.

485 (b) *Upkeep and Maintenance* – The Grantor shall be solely responsible for the
486 upkeep and maintenance of the Property, to the extent it may be required by law.
487 The Grantee shall have no obligation for the upkeep or maintenance of the
488 Property. If the Grantee acts to maintain the Property in order to protect the
489 Grantee's interest in the Property, the Grantor will reimburse the Grantee for
490 reasonable costs incurred by the Grantee in connection therewith.

491
492 (c) *Compliance with Law* – The Grantor shall comply with all applicable laws
493 with respect to the Property. Nothing in this Easement relieves the Grantor of any
494 obligation with respect to the Property or restriction on the use of the Property
495 imposed by law, whether currently existing or hereafter enacted or otherwise
496 promulgated by any federal, state, county, municipal, or other governmental body
497 (whether legislative, administrative, or judicial). In no event shall this Easement
498 be construed as granting any landowner rights not permitted by local building,
499 land use and/or zoning regulations at the time of construction, demolition,
500 occupation, etc.

501
502 (d) *Liability and Indemnification* – In view of the Grantee's and the Department's
503 negative rights, limited access to the land, and lack of active involvement in the
504 day-to-day management activities on the Property, the Grantor shall indemnify,
505 protect, defend and holds harmless the Grantee, the Department, their officers,
506 directors, members, employees, contractors, legal representatives, agents,
507 successors and assigns (collectively, "Agents and Assigns") from and against all
508 liabilities, costs, losses, orders, liens, penalties, claims, demands, damages,
509 expenses, or causes of action or cases, including without limitation reasonable
510 attorneys' fees, arising out of or in any way connected with or relating to the
511 Property or the Easement. The Grantor shall be solely liable for injury or the
512 death of any person, or physical damage to any property, or any other costs or
513 liabilities resulting from any act, omission, condition, or other matter related to or
514 occurring on or about the Property, regardless of cause, unless due to the
515 negligence or willful misconduct of the Grantee, the Department, and/or their
516 respective Agents and Assigns. Notwithstanding the foregoing, the foregoing
517 indemnification obligations shall not apply any acts, actions, omissions or rights
518 of any third party Mineral Rights owner.

519
520 Neither the Grantee, the Department, nor their Agents and Assigns shall have
521 responsibility for the operation of the Property, monitoring of hazardous
522 conditions on it, or the protection of the Grantor, the public or any third parties
523 from risks relating to conditions on the Property. Without limiting the foregoing,
524 neither the Grantee, the Department, nor their respective Agents and Assigns shall
525 be liable to the Grantor or other person or entity in connection with consents
526 given or withheld, or in connection with any entry upon the Property occurring
527 pursuant to this Easement, or on account of any claim, liability, damage or
528 expense suffered or incurred by or threatened against the Grantor or any other
529 person or entity, except as the claim, liability, damage, or expense is the result of

the gross negligence or intentional misconduct of the Grantee, the Department, and/or their respective Agents and Assigns.

16. Monitoring Reports.

The Grantee shall manage its responsibilities as holder of this Easement so as to uphold the Purpose of this Easement. The Grantee's responsibilities include, but are not limited to, annual monitoring, such additional monitoring as circumstances may require, record keeping, and enforcement of this Easement, for the purpose of preserving the Property's agricultural productive capacity and open space character in perpetuity. The Grantee shall report to the Department by June 30 annually after the annual monitoring visit, describing method of monitoring, condition of the Property, stating whether any violations of this Easement were found during the period, describing any corrective actions taken, the resolution of any violation, and any transfer of interest in the Property. Failure to do so shall not impair the validity of this Easement or limit its enforceability in any way. The Grantee shall provide the Grantor with a copy of each report delivered to the Department.

17. Monitoring and Enforcement.

With reasonable advance notice (except in the event of an emergency or suspected emergency), the Grantee shall have the right to enter upon, inspect, observe, monitor and evaluate the Property to identify the current condition of, and uses and practices on the Property and to determine whether the condition, uses and practices are consistent with this Easement, subject to the following conditions:

(a) The Grantee shall give prior written notice to the Grantor at least two (2) business days before entering upon the Property, except in the event of an emergency or suspected emergency, in which case reasonable oral notice shall be given. The notice shall indicate the purpose of the entry and shall provide the timeframe during which the Grantee shall be upon the Property;

(b) Entry shall take place during normal business hours unless otherwise required due to emergency circumstances; and

(c) The Grantee shall indemnify, defend with counsel of the Grantor's choice, and hold the Grantor harmless from, all expense, loss, liability, damages and claims, including the Grantor's attorneys' fees, if necessary, arising out of the Grantee's entry on the Property or Grantee's violation of this Easement, unless caused by a violation of this Easement by the Grantor or by the Grantor's negligence or willful misconduct.

571 The Grantee may take all actions that it deems necessary to ensure compliance with the
572 terms, conditions, covenants and purposes of this Easement. The Grantee shall have the
573 right to prevent and correct violations of the terms of this Easement. The Grantor shall
574 indemnify, protect, defend and hold harmless the Grantee, the Department, their
575 respective officers, directors, members, employees, contractors, legal representatives,
576 agents, successors and assigns from and against all liabilities, costs, losses, orders, liens,
577 penalties, claims, demands, damages, expenses, or causes of action or cases, including
578 without limitation reasonable attorneys' fees, arising out of the violation of the terms of
579 this Easement by the Grantor.

580
581 If the Grantee finds what it believes is a violation or potential violation, it may at its
582 discretion take appropriate legal action to ensure compliance with the terms, conditions,
583 covenants and purposes of this Easement and shall have the right to correct violations and
584 prevent the threat of violations. Except when an ongoing or imminent violation could
585 irreversibly diminish or impair the agricultural productive capacity and open space
586 character of the Property, the Grantee shall give the Grantor written notice of the
587 violation or potential violation and thirty (30) days to correct it, or if the alleged violation
588 cannot be cured within thirty (30) days, such additional reasonable time necessary as long
589 as the Grantor initiates such cure within such thirty (30) day period and diligently pursue
590 such cure until completed, before filing any legal action.

591
592 If a court of competent jurisdiction determines that a violation may exist or has occurred
593 or is about to occur, the Grantee may obtain an injunction, specific performance, or any
594 other appropriate equitable or legal remedy, including (i) money damages, including
595 damages for the loss of the agricultural conservation values protected by this Easement; (ii)
596 restoration of the Property to its condition existing prior to such violation; and (iii) an award
597 for all the Grantee's reasonable expenses incurred in stopping and correcting the
598 violation, including but not limited to reasonable attorneys' fees. The Grantee's remedies
599 under this section shall be cumulative and shall be in addition to all remedies now or
600 hereafter existing at law or in equity.

601
602 Without limiting the Grantor's liability therefore, the Grantee shall apply damages
603 recovered to the cost of undertaking any corrective action on the Property. Should the
604 restoration of lost values be impossible or impractical for whatever reason, the Grantee
605 shall apply any and all damages recovered to furthering the Grantee's mission, with
606 primary emphasis on agricultural conservation easement acquisition and enforcement.

607
608 In the event the Grantee fails to enforce any term, condition, covenant or restriction of
609 this Easement, as determined by the Director of the Department, the Director of the
610 Department and his or her successors and assigns shall have the right to enforce this
611 Easement after giving notice to the Grantee and the Grantor and providing a reasonable
612 opportunity under the circumstances for the Grantee to enforce any term, condition,
613 covenant, or purpose of the Easement. In the event that the Director of the Department
614 determines that the Grantee has failed to enforce any of the terms, conditions, covenants,
615 or purposes of the Easement, the Director of the Department and his or her successors

and assigns shall be entitled to exercise the same right to enter the Property granted to the Grantee under the terms of Section 17, including rights of immediate entry in the event of an emergency or suspected emergency where the Director of the Department or his or her successor or assign determines that immediate entry is required to prevent, terminate or mitigate a violation of this Easement.

The failure of the Grantee or the Department to discover a violation or potential violation, or failure or refusal to exercise any rights under the terms of this Easement or to take immediate legal action to prevent or correct a violation or potential violation known to the Grantee or the Department, shall not bar the Grantee or the Department from taking subsequent legal action and shall not constitute a waiver or forfeiture of the Grantee's or the Department's right to enforce any term, condition, covenant or purpose of this Easement or any other term herein.

18. *Transfer of Easement.*

This Easement may only be assigned or transferred to a private nonprofit organization that, at the time of transfer, is a "qualified organization" under United States Internal Revenue Code Section 170(h) and under California Civil Code Section 815.3(a) and has similar purposes to preserve agricultural lands and open space. If no such private nonprofit organization exists or is willing to assume the responsibilities imposed by this Easement, then this Easement may be transferred to any public agency authorized to hold interests in real property as provided in California Civil Code Section 815.3(b). Such an assignment or transfer may proceed only if the organization or agency expressly agrees to assume the responsibility imposed on the Grantee by the terms of this Easement and is expressly willing and able to hold this Easement for the Purpose for which it was created. All transfers shall be duly recorded.

If the Grantee should desire to assign or transfer this Easement, the Grantee must obtain input and prior written permission from the Grantor and the Department, which permission shall not be unreasonably withheld.

If the Grantee or its successors ever ceases to exist or no longer qualifies under U.S. Internal Revenue Code Section 170(h), or applicable state law, the Department, in consultation with the Grantor, shall identify and select an appropriate private or public entity to which this Easement shall be transferred.

19. *Transfer of Property Interest.*

Any time the Property itself, or any interest in it, is transferred by the Grantor to any third party, the Grantor shall notify the Grantee and the Department in writing at least thirty (30) days prior to the transfer of the Property or interest, and the document of conveyance shall expressly incorporate by reference this Easement. Any document conveying a lease of the Property shall expressly incorporate by reference this Easement. Failure of the

Grantor to do so shall not impair the validity of this Easement or limit its enforceability in any way.

20. *Amendment of Easement.*

This Easement may be amended only with the written consent of the Grantor, the Grantee, and the Director of the Department. Any such amendment shall be consistent with the Purpose of this Easement and with the Grantee's easement amendment policies, and shall comply with all applicable laws, including Internal Revenue Code Section 170(h), or any regulations promulgated in accordance with that section, and with California Civil Code Section 815, et seq., and the California Farmland Conservancy Program Act as codified in California Public Resources Code Section 10200, et seq., and any regulations promulgated thereunder. No amendment shall diminish or affect the perpetual duration or the Purpose of this Easement, nor the status or rights of the Grantee under the terms of this Easement.

This Easement and any amendment to it shall be recorded in Kern County. Copies of any amendments to this Easement shall be provided to the Department.

The costs associated with an amendment to the easement, requested by Grantor, shall be borne by the Grantor.

21. *Termination of Easement.*

(a) Administrative termination of the Easement shall be governed by California Public Resources Code Sections 10270-10277. This Easement shall not be terminated unless it meets the criteria for termination including, California Constitution Article XIII, Section 8, California Public Resources Code Sections 10273 and 10275, Revenue and Taxation Code Sections 421.5 and 422.5, and other applicable laws, rules and regulations. The Grantee and the Department shall be notified at least thirty (30) days prior to initiation of any proceedings to terminate this Easement. No inaction or silence by the Grantee shall be construed as abandonment of the Easement. The fact that the Property is not in agricultural use is not reason for termination of this Easement.

(b) Other than pursuant to eminent domain or purchase in lieu of eminent domain, no other voluntary or involuntary sale, exchange, conversion or conveyance of any kind of all or part of the Property, or of any interest in it, shall limit or terminate the provisions of this Easement. Termination of the Easement through condemnation is subject to the requirements of Public Resources Code Section 10261, the eminent domain laws of the State of California, federal law, and this Easement. The Property may not be taken by eminent domain or in lieu of eminent domain if the planned use is more than seven years in the future (California Code of Civil Procedure Section 1240.220). The Grantee shall be paid by the condemnor the value of the Easement at the time of condemnation (Public Resources Code Section 10261(a)(2)). Purchase in lieu of condemnation, or settlement of an eminent domain proceeding, shall occur pursuant to applicable laws and procedures, including but not limited to California Government Code Sections 7267.1 and 7267.2,

and shall require approval of the Grantee and the Director of the Department. The Grantee shall have an opportunity to accompany the appraiser for the condemning agency when the appraiser goes on the Property with the Grantor.

Should this Easement be condemned or otherwise terminated on any portion of the Property, the balance of the Property shall remain subject to this Easement. In this event, all relevant related documents shall be updated and re-recorded by the Grantee to reflect the modified easement area and encumbrances junior to this Easement shall remain subordinate to the Easement as amended.

If the Easement or any portion thereof is terminated by an entity exercising the power of eminent domain, or for any other reason, the amount of proceeds due from the Grantor will be determined according to applicable state law and distributed as set forth in Section 21(c).

(c) The grant of this Easement gives rise to a property right, immediately vested in the Grantee. For the purpose of determining the amount to be paid by the Grantor in a repurchase of the Easement at the time of a voluntary termination pursuant to sections California Public Resources Code 10270-10277 or pursuant to judicial proceedings, and for the purpose of allocating proceeds from a sale or other disposition of the Property at the time of termination, the Easement and the Grantee's property right therein shall have a value equal to the difference between the current fair market value of the Property unencumbered by this Easement and the current fair market value encumbered by this Easement, each as determined on or about the date of termination. The values shall be determined by an appraisal performed by an appraiser jointly selected by the parties. The cost of the appraisal shall be paid by the Grantor and the appraisal shall be subject to approval by the Department. Nothing herein shall prevent the Grantor, the Grantee or the Department from having an appraisal prepared at its own expense.

Upon approval of termination of this Easement or any portion thereof, the Grantor shall reimburse the State of California, Department of Conservation California Farmland Conservancy Program Fund and the Grantee an amount equal to their proportionate share of the value of the Easement, or portion thereof, pursuant to California Public Resources Code Section 10276. The amount required to be paid in connection with the Grantor's reimbursement shall be distributed as follows: (i) to the State of California, Department of Conservation, California Farmland Conservancy Program Fund, seventy five percent (75%); and (ii) to the Grantee twenty five percent (25%)(the "Grantee's Consideration"), representing the proportion of easement value originally contributed by these agencies for the purchase of this Easement. The Grantee will pay the Grantee's Consideration over time following the effective date of this Easement. If at the time this Easement is terminated the Grantee has not paid all of the Grantee's Consideration, the Grantor shall only be required to reimburse the Grantee in proportion to the percentage of the Grantee's Consideration that the Grantee has already been paid, and the Grantor shall retain the remainder. This Easement shall not be deemed terminated until such payment is received by all parties. The Grantee shall use any funds received from the termination of this

Easement in a manner consistent with the Purpose of this Easement.

(d) If the Grantee obtains payment on a claim under a title insurance policy insuring this Easement, payment shall be distributed as set forth in Section 21(c).

22. *Interpretation.*

This Easement shall be interpreted under the laws of the State of California, resolving any ambiguities and questions of the validity of specific provisions so as to give maximum effect to its conservation purposes. References to specific authorities in this Easement shall be to the statute, rule, regulation, ordinance or other legal provision that is in effect at the time this Easement becomes effective. No provision of this Easement shall constitute governmental approval of any improvements, construction or other activities that may be permitted under this Easement.

23. *Perpetual Duration; Successors.*

Pursuant to California Civil Code Section 815.1, this Easement shall run with the land in perpetuity. Every provision of this Easement that applies to the Grantor or the Grantee shall also apply to their respective agents, heirs, executors, administrators, assigns, and all other successors as their interests may appear.

No merger of title, estate or interest shall be deemed effected by any previous, contemporaneous, or subsequent deed, grant, or assignment of an interest or estate in the Property, or any portion thereof, to the Grantee, or its successors or assigns. It is the express intent of the parties that this Easement not be extinguished by, merged into, modified, or otherwise deemed affected by any other interest or estate in the Property now or hereafter held by the Grantee or its successors or assigns.

24. *Notices.*

Any notices to the parties required by this Easement shall be in writing and shall be personally delivered or sent by First-Class Mail to the following addresses, unless a party has been notified by the other of a change of address:

To the Grantor:

WASCO REAL PROPERTIES I, LLC
c/o Rosedale Ranch
P.O. Box 1200
Wasco, CA 93280
Attn: Manager

To the Grantee:

796 SEQUOIA RIVERLANDS TRUST
797 427 South Garden Street
798 Visalia, CA 93277
799

800 Any notices required by this Easement to be sent to the Department shall be in writing
801 and shall be personally delivered or sent by first class mail, at the following address,
802 unless a party has been notified by the Department of a change of address:
803

804 To the Department:

805
806 Department of Conservation
807 801 K Street, MS 18-01
808 Sacramento, CA 95814
809 Attn: California Farmland Conservancy Program
810

811 25. *The Grantor's Environmental Warranty.*
812

813 (a) Nothing in this Easement shall be construed as giving rise to any right or
814 ability in the Grantee or the Department to exercise physical or management
815 control over the day-to-day operations of the Property, or any of the Grantor's
816 activities on the Property, or otherwise to become an "owner" or "operator" with
817 respect to the Property as those words are defined and used in environmental
818 laws, including the Comprehensive Environmental Response, Compensation, and
819 Liability Act of 1980 ("CERCLA"), as amended or any corresponding state and
820 local statute or ordinance.
821

822 (b) The Grantor warrants that it has no actual knowledge of a release or threatened
823 release of any Hazardous Materials on, at, beneath or from the Property.
824 Moreover the Grantor hereby promises to defend and indemnify the Grantee and
825 the Department against all litigation, claims, demands, penalties and damages,
826 including reasonable attorneys' fees, arising from or connected with the release or
827 threatened release of any Hazardous Materials on, at, beneath or from the
828 Property, or arising from or connected with a violation of any Environmental
829 Laws at the Property. The Grantor's indemnification obligation shall not be
830 affected by any authorizations provided by the Grantee to the Grantor with respect
831 to the Property or any restoration activities carried out by the Grantee at the
832 Property; provided, however, that the Grantee shall be responsible for any
833 Hazardous Materials contributed after this date to the Property by the Grantee.
834

835 (c) The Grantor warrants that it shall remain in compliance with, all applicable
836 Environmental Laws. The Grantor warrants that there are no notices by any
837 governmental authority of any violation or alleged violation of, non-compliance
838 or alleged non-compliance with or any liability under any Environmental Law
839 relating to the operations or conditions of the Property.
840

(d) "Environmental Law" or "Environmental Laws" means any and all Federal, state, local or municipal laws, rules, orders, regulations, statutes, ordinances, codes, guidelines, policies or requirements of any governmental authority regulating or imposing standards of liability or standards of conduct (including common law) concerning air, water, solid waste, Hazardous Materials, worker and community right-to-know, hazard communication, noise, radioactive material, resource protection, subdivision, inland wetlands and watercourses, health protection and similar environmental health, safety, building and land use as may now or at any time hereafter be in effect.

(e) "Hazardous Materials" means any petroleum, petroleum products, fuel oil, waste oils, explosives, reactive materials, ignitable materials, corrosive materials, hazardous chemicals, hazardous wastes, hazardous substances, extremely hazardous substances, toxic substances, toxic chemicals, radioactive materials, infectious materials and any other element, compound, mixture, solution or substance which may pose a present or potential hazard to human health or the environment or any other material defined and regulated by Environmental Laws.

(f) If at any time after the effective date of this Easement there occurs a release, discharge or other incident in, on, or about the Property of any substance now or hereafter defined, listed, or otherwise classified pursuant to any federal, state, or local law, regulation, or requirement as hazardous, toxic, polluting, or otherwise contaminating to the air, water, or soil, or in any way harmful or threatening to human health or the environment, the Grantor agrees to take any steps that are required of the Grantor with respect thereto under federal, state, or local law necessary to ensure its containment and remediation, including any cleanup.

26. *The Grantor's Title Warranty; No Prior Conservation Easements.*

The Grantor represents and warrants that, other than mineral rights separated as indicated in the Legal Description attached as Exhibit A, it owns the entire fee simple interest in the Property, and hereby promises to defend this Easement against all claims that may be made against it. Any and all financial liens or financial encumbrances with priority over this Easement existing as of the date of the recording of this Easement have been subordinated to this Easement in writing and shall be duly recorded in Kern County. Exhibit C ("Prior Encumbrances") sets forth all of the prior encumbrances. Grantor shall have the right to place additional financial liens or encumbrances on the Property as long as such liens or encumbrances are subordinated to this Easement in writing and duly recorded in Kern County. The Grantor represents and warrants that the Property is not subject to any other conservation easement whatsoever.

27. *Granting Subsequent Easements, Interests in Land, or Use Restrictions.*

The grant of any subsequent easements, interests in land, or use restrictions that might diminish or impair the agricultural productive capacity or open space character of the

Property is prohibited. The Grantor may grant subsequent easements, including conservation easements, interests in land, or use restrictions on the Property provided that they do not restrict agricultural husbandry practices or interfere with any of the terms of this Easement, as determined by the Grantee. "Husbandry practices" means agricultural activities, such as those specified in California Civil Code Section 3482.5(e), conducted or maintained for commercial purposes in a manner consistent with proper and accepted customs and standards, as established and followed by similar agricultural operations in the same locality. The Grantor owns an adjacent parcel of land identified as Kern County Assessor's Parcel Number 072-160-10 (the "Adjacent Parcel"). Upon the sale of the Property or the Adjacent Parcel to a third party, the Grantor may grant or reserve, as applicable, an easement for a pipeline for the transport of water across the Property to benefit and serve the Adjacent Parcel in support of permitted uses, provided that any such easement shall not significantly diminish or impair the agricultural productive capacity and open space character of the Property. Any such easement shall be in writing and shall be duly recorded in Kern County. The Grantee's written approval shall be obtained at least thirty (30) days in advance of the Grantor's execution of any proposed subsequent easement, interests in land, or use restriction on the Property, and such subsequent easements, interests in land, and use restrictions shall make reference to and be subordinate to this Easement. The Grantee shall notify the Department immediately upon receipt of request by the Grantor to grant a subsequent easement, interest in land, or use restriction on the Property. The Grantee shall notify the Department in the event that it approves the grant of any subsequent easement, interest in land, or use restriction on the Property. The Grantee shall disapprove the granting of any proposed subsequent easement, interest in land, or use restriction that appears to restrict agricultural husbandry practices, or diminishes or impairs the agricultural productive capacity or open space character of the Property.

28. *Severability.*

If any term, provision, covenant, condition, or restriction of this Easement is held by a court of competent jurisdiction to be unlawful, invalid, void, unenforceable, or not effective the remainder of this Easement shall remain in full force and effect and shall in no way be affected, impaired, or invalidated.

29. *Entire Agreement.*

This Easement is the final and complete expression of the agreement between the parties with respect to the subject matter contained herein. Any and all prior or contemporaneous agreements with respect to this subject matter, written or oral, are merged into and superseded by this written instrument.

30. *Exhibits.*

All exhibits attached to this Easement are hereby incorporated in this Easement by this reference.

931
932 31. *Counterparts*

933
934 This Easement may be executed in counterparts, each of which shall be deemed an original
935 and which together shall constitute one and the same Easement.

936
937 32. *Remedies Not Exclusive.*

938
939 Any party's use of any remedy specified herein for the enforcement of this Agreement is
940 not exclusive and shall not deprive such party of, or limit the application of, any other
941 remedy provided by law, at equity or otherwise.

942
943 33. *Exercise of Remedies.*

944
945 The exercise of any right or remedy by either party pursuant to this Agreement shall not in
946 any way constitute a cure or waiver of any default hereunder, invalidate any act done
947 pursuant to any notice of default, or prejudice either party in the exercise of any of their
948 respective rights pursuant to this Agreement.

949
950 34. *Attorneys' Fees and Disbursements.*

951
952 In the event of any arbitration or litigation between the parties in connection with the
953 interpretation, performance or enforcement of this Agreement, the prevailing party in such
954 litigation shall be entitled, in addition to equitable relief or damages or both or other relief,
955 to be reimbursed by the nonprevailing party for all costs of the litigation, including, but not
956 limited to, arbitration's fees, court costs, expert witness fees, investigation costs and such
957 attorneys' fees and disbursements as the court in which the litigation occurs shall determine
958 to be reasonable.

959
960 35. *Execution of Documents.*

961
962 In addition to any documents expressly referred to in this Agreement to be executed by one
963 or more of the parties, all the parties agree to execute any and all documents which may be
964 required to implement the intent or provisions of this Agreement.

965
966 36. *Choice of Law; Venue.*

967
968 This Agreement shall be governed by and construed in accordance with the substantive and
969 procedural laws of the State of California without regard to its conflict of law rules. This
970 Agreement is entered into and is to be performed in Kern County, California, and
971 accordingly the parties agree that the venue for any and all disputes under this Agreement
972 shall be the Kern County Superior Court, Metropolitan Division.

973
974 37. *Construction.*

976 In this Easement, the masculine, feminine or neuter gender and the singular or plural
977 number shall be deemed to include the other whenever the context so requires. The
978 captions appearing at the commencement of the provisions of this Easement are
979 descriptive only and for convenience in reference. Should there be any conflict between
980 any such caption and provision at the head of which it appears, the provision, and not the
981 caption, shall control and govern in the construction of this Easement.

982
983 38. *Waiver.*

984
985 Notwithstanding any agreement between the parties, the waiver by any party of a breach of
986 any provision of this Agreement shall not be deemed a continuing waiver or waiver of any
987 subsequent breach whether of the same or another provision thereof.

988
989
990 [REMAINDER OF THE PAGE INTENTIONALLY BLANK;
991 SIGNATURES ON THE NEXT PAGE]
992

993 39. *Acceptance.*

994
995 As attested by the signature of its Executive Director affixed hereto, in exchange for
996 consideration, the Grantee hereby accepts without reservation the rights and
997 responsibilities conveyed by this Deed of Agricultural Conservation Easement.

998
999 To Have and To Hold, this Deed of Agricultural Conservation Easement unto the
1000 Grantee, its successors and assigns, forever.

1001
1002 In Witness Whereof, the Grantor and the Grantee, intending to legally bind themselves,
1003 have set their hands on the date first written above.

1004
1005 GRANTOR

1006
1007
1008 WASCO REAL PROPERTIES I, LLC

1009
1010 By: 

1011 KEITH GARDINER

1012 Its: Manager

1013
1014 Date: 11/23/2009

1015
1016
1017 GRANTEE

1018
1019 SEQUOIA RIVERLANDS TRUST,
1020 a California nonprofit public benefit corporation

1021
1022 By: 

1023 SOPAC MULHOLLAND

1024 Its: Executive Director

1025
1026 Date: 12/8/09

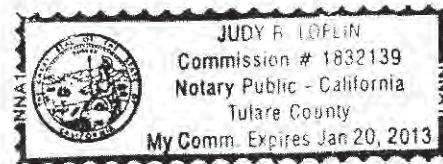
ACKNOWLEDGEMENTS

STATE OF CALIFORNIA } ss
COUNTY OF TULARE }

On Nov 23, 2009 before me, Judy R. Loflin, Notary Public of the State of California, personally appeared Keith Gardiner, proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument. I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature



STATE OF CALIFORNIA } ss
COUNTY OF Tulare }

On DEC 8, 2009 before me, Judy R. Loflin, Notary Public of the State of California, personally appeared Sopac McCarthy Mulholland, proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument. I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature

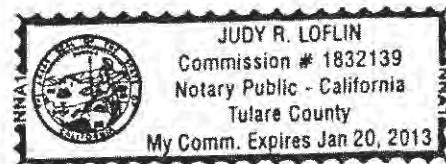


EXHIBIT A

LEGAL DESCRIPTION

The land referred to herein is situated in the State of California, County of Kern, Unincorporated Area, and described as follows,

All of Section 26, Township 27 south, Range 25 east, Mount Diablo Meridian, in the Unincorporated Area, County of Kern, State of California, according to the Official Plat thereof, lying westerly of the westerly line of the Friant-Kern Canal, as described in the Declaration to Taking recorded in Book 1710, Page 8 of Official Records.

Except all oil, gas and other minerals of whatsoever kind or character in or under or which may be produced from said land as excepted in Deed from Tenneco West, Inc., a Delaware corporation, recorded February 17, 1972 in Book 4634, Page 636 of Official Records.

Also except any remaining oil, gas and other minerals owned by Sun World, Inc., in and under the surface of said land, together with the full and free right to enter thereon and use so much of the surface thereof as may be reasonably necessary for operating, producing and marketing said oil and gas and other materials, upon the terms contained therein as reserved by Sun World, Inc. in the Deed to Western Fruit Acquisition, Inc., recorded January 30, 1986.

APN: 072-150-07

EXHIBIT B THE BUILDING ENVELOPES



EXHIBIT C**PRIOR ENCUMBRANCES****Taxes:**

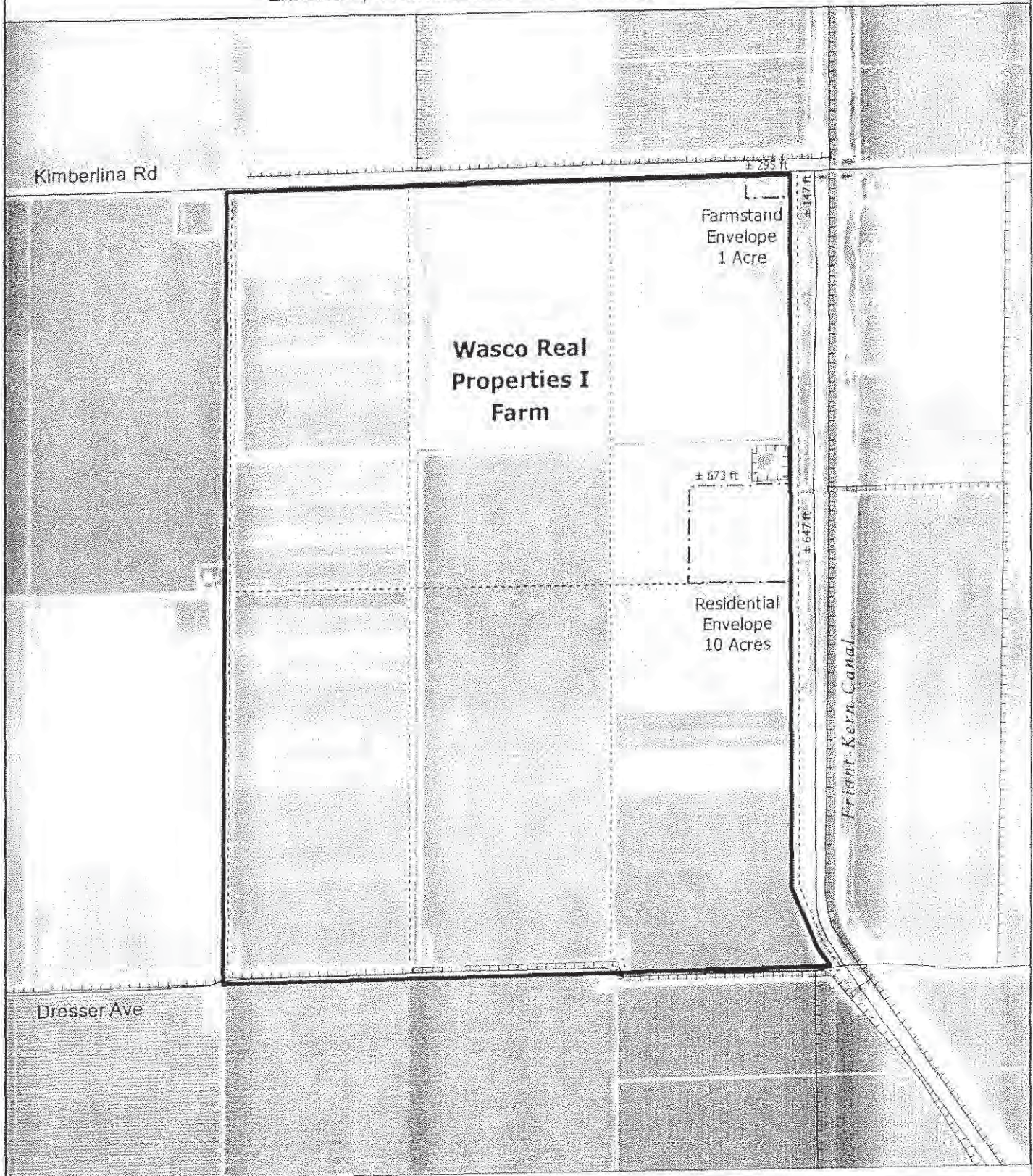
- A. Property taxes, which are a lien not yet due and payable, including any assessments collected with taxes, to be levied for the fiscal year 2008-2009 which are a lien not yet payable.
- B. General and Special City and/or County taxes, including any personal property taxes and any assessments collected with taxes, for the fiscal year 2007-2008:
- | | |
|------------------------------|-----------------|
| 1 st Installment: | \$6,302.80 Paid |
| 2 nd Installment: | \$6,302.79 Paid |
| Land: | \$824,957.00 |
| Improvements: | \$341,326.00 |
| Exemption: | \$0.00 |
| Bill No.: | 07-1053375-00-9 |
| Code Area: | 085-009 |
| Assessment No.: | 072-150-07-00-0 |
- C. The lien of supplemental taxes, if any, assessed pursuant to the provisions of Chapter 3.5 (commencing with Section 75) of the Revenue and Taxation Code of the State of California.

Exceptions:

1. Preexisting water rights, claims or title to water in or under said land, whether or not shown by the public records.
2. Any assessments levied or which may be levied by North Kern Water Storage District.
3. Right of the public in and to that portion of said property lying within the line of Kimberlina Road, as it now exists.
4. Subject to the Contract of Settlement of Water Rights as set forth in an Agreement executed by J.B. Haggin, et al, and Henry Miller, et al, dated July 28, 1888, recorded in Book 2 Page 40 of Agreements, and all supplements thereto.
5. Covenants and restrictions imposed by a Land Conservation Contract executed pursuant to Section 51200 et. Seq. California Government Code, dated none shown, executed by none shown, recorded February 26, 1969 in Book 4247, Page 735 of Official Records.

- 1145 Affects: The herein described land and other land.
- 1146 6. An easement of the purpose shown below and rights incidental thereto as set forth
- 1147 in a documents in favor of Pacific Gas and Electric Company, a California
- 1148 corporation for the purpose of poles, aerial wires, cables, electrical conductors
- 1149 with associated crossarms, braces, transformers, anchors, guy wires and cables,
- 1150 fixture and appurtenances and incidental purposes, recorded August 13, 1987, in
- 1151 Bok 6037, Page 479 of Official Records, affects: Commencing at the found 2 inch
- 1152 brass cap tagged L.S. 2863 accepted as marking the south quarter corner of said
- 1153 Section 26 and running along the southerly boundary line of said Section 26. (A)
- 1154 West 69.2 feet to the true point of beginning of said route; thence leaving said
- 1155 southerly boundary line (1) north 49°37.3 minutes east 133.3 feet to a point within
- 1156 the boundary lines of said lands.
- 1157
- 1158 7. Rules and Regulations for Distribution and Use of Water, executed by North Kern
- 1159 Water Storage District, recorded October 29, 2003, as Instrument No.
- 1160 0203236557 of Official Records.
- 1161
- 1162 8. An agreement to which reference is made for full particulars dated October 31,
- 1163 2003, by and between North Kern Water Storage District and The Metropolitan
- 1164 Water District of Southern California, regarding "Agreement between North Kern
- 1165 Water Storage District and The Metropolitan Water District of Southern
- 1166 California for a Demonstration Exchange Program", recorded December 19,
- 1167 2003, as Instrument/File No. 0203274700 of Official Records.
- 1168
- 1169 9. An easement for Pipeline and rights incidental thereto in favor of North Kern
- 1170 Water Storage District, a California water storage district as set forth in a
- 1171 document recorded April 15, 2009 as Instrument No. 029053119 of Official
- 1172 Records, affects said land.
- 1173

Exhibit B, Wasco Farm and Building Envelopes

0059-62
Cont'd

Wasco Real Properties I Farm Agricultural Easement

Aerial Photograph

Sequoia Riverlands Trust
FOUNDED 1991

Property Boundary

Road

Farm Road

Building Envelope

Canal / Ditch

1 inch = 917 feet
0 250 500 750 1,000 Feet

Aerial Imagery from
Google Earth, 2004
Prepared By
Sequoia Riverlands Trust
GIS by GreenInfo Network
Oct. 13, 2009



DO NOT RECORD

0059-62
Cont'd**Request to Withhold Transfer Tax from Public Record**

(Cal. Rev. & Tax code 11901, et seq.)

DOCUMENT NUMBER: _____

DATE RECORDED: _____

TO: Kern COUNTY RECORDER

Request is made in accordance with the provisions of the Documentary Transfer Act that the amount of transfer tax not be shown on the original document in which:

is named as GRANTOR, and

Wasco Real Properties I, LLC

is named as GRANTEE

Sequoia Riverlands Trust, a California non profit public benefit corporation

Property described within the accompanying document is located in:

☐ City of _____ ☒ Unincorporated Area, County of Kern

Transfer Tax Due \$4,169.00 _____

☒ Computed on Full Value of Property Conveyed☐ Computed on Full Value less liens and encumbrances remaining at date of sale

Date: 12/8/09

STEWART TITLE

Signature of Declarant

Exhibit DSREIR 9

James W. Fitch, Assessor-Recorder
Kern County Official Records

TT
12/09/2011
12:49 PM

STEWART TITLE

191794

**RECORDING REQUESTED BY AND
WHEN RECORDED PLEASE
RETURN TO:**

SEQUOIA RIVERLANDS TRUST
427 South Garden Street
Visalia, CA 93277

Recorded at the request of
207 Stewart Title

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DEED OF AGRICULTURAL CONSERVATION EASEMENT

This Deed of Agricultural Conservation Easement (this "Easement") is granted on this 30th day of Nov., 2011, by **WASCO REAL PROPERTIES I, LLC**, a California limited liability company (the "Grantor"), to **SEQUOIA RIVERLANDS TRUST**, a California nonprofit public benefit corporation (the "Grantee"), for the purpose of forever conserving the agricultural productive capacity and open space character of the subject property. The Grantor and the Grantee are referred to singularly as a "party" and collectively as the "parties" on a generic basis.

Recitals

This Easement is made and entered into in reliance upon the accuracy of the following facts and circumstances:

A. The Grantor is the sole owner in fee simple of that certain agricultural real property in Kern County, California, identified as Kern County Assessor's Parcel Numbers 072-160-10 and 072-160-13 (the "Property") and legally described in Exhibit "A" attached hereto and incorporated herein by reference as if fully set forth at length. The Grantor owns none of the Mineral Rights (as defined in Section 8);

B. The Property consists of approximately five hundred seventy-one and twenty-four hundredths acres (571.24 acs.) of land, and includes the Agricultural Employee Housing, Farmstand, Residential and Solar Envelopes (all as more specifically defined in Section 5) depicted in Exhibits B-1 and B-2 (collectively, "Exhibit B") attached hereto and incorporated herein by reference as if fully set forth at length and more specifically defined in Section 5 of this Easement (collectively, the "Building Envelopes");

DOCUMENTARY TRANSFER TAX \$ See attached
COMPUTED ON FULL VALUE OF PROPERTY CONVEYED.
OR COMPUTED ON FULL VALUE LESS LIENS AND
ENCUMBRANCES REMAINING AT TIME OF SALE.

E.A. Brewer / Stewart Title

Signature of Declarant or Agent determining tax. Firm Name

C. Except as shown in Exhibit B, the Property is open farmland, whose soils have been classified as predominantly prime farmland by the U.S. Department of Agriculture's Natural Resources Conservation Service ("NRCS"), and by the California Department of Conservation's Farmland Mapping and Monitoring Program, because the Property has the soil quality, growing season, and water supply needed for sustained agricultural production. The agricultural and other characteristics of the Property, its current use and state of improvement, are documented and described in a Baseline Documentation Report prepared by the Grantee with the cooperation of the Grantor dated November 1, 2011 ("Baseline Report"), which is incorporated herein by reference as if fully set forth at length. The parties acknowledge and understand that the Baseline Report is a complete and accurate representation of the condition of the Property as of the date of this Easement. The parties shall retain duplicate original copies of the Baseline Report. The Baseline Report may be used to establish whether or not a change in the use or condition of the Property has occurred, but its existence shall not preclude the use of other evidence to establish the condition of the Property as of the date of this Easement. A true and complete copy of the Baseline Report was provided to the Grantee, the Department (as defined in Recital "D") and the United States (as defined in Recital "E");

D. The California Department of Conservation's Farmland Conservancy Program (the "Department") has made a grant of funds to the Grantee to support the acquisition of this Easement. The Department's funds represent a substantial investment by the people of the State of California in the long-term conservation of valuable agricultural land and the retention of agricultural land in perpetuity. The Property and this Easement have met the California Farmland Conservancy Program's mandatory eligibility criteria and certain selection criteria and have multiple natural resource conservation objectives. The rights vested herein in the State of California arise out of the State's statutory role in fostering the conservation of agricultural land in California and its role as fiduciary for the public investment represented here.

E. Under the authority of the Farm and Ranch Lands Protection Program, the United States Department of Agriculture's Natural Resources Conservation Service (alternately referred to as "NRCS," "USDA" or the "United States," as appropriate) has provided certain funds to support the acquisition of this Easement, entitling the United States certain rights as set forth herein;

F. The Grantor grants this Easement for valuable consideration to the Grantee for the purpose of assuring that, under the Grantee's perpetual stewardship, the agricultural productive capacity, including its prime soils, and open space character of the Property will be conserved and maintained forever, and that uses of the land that are inconsistent with these conservation purposes will be prevented or corrected. The parties agree, however, that the current agricultural use of, and improvements to, the Property are consistent with the conservation purposes of this Easement;

G. This easement will preserve open space (including farmland) pursuant to clearly delineated Federal, state and local governmental conservation policy and will yield a significant public benefit. In particular the conservation purposes of this Easement are recognized by, and the grant of this Easement will serve, the following clearly delineated governmental conservation

policies:

1. The Farmland Protection Policy Act, P.L. 97-98, 7 U.S.C. Section 4201, et seq., whose purpose is "to minimize the extent to which Federal programs and policies contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses, and to assure that Federal programs are administered in a manner that, to the extent practicable, will be compatible with State, unit of local government and private programs and policies to protect farmland;"
2. California Civil Code Section 815, et seq., which defines perpetual conservation easements;
3. California Constitution Article XIII, Section 8, California Revenue and Taxation Code Sections 421.5 and 422.5, and California Civil Code Section 815.1, under which this Easement is an enforceable restriction, requiring that the Property's tax valuation be consistent with restriction of its use for purposes of food and fiber production and conservation of natural resources;
4. California Public Resources Code Section 10200, et seq., which creates the California Farmland Conservancy Program within the Department;
5. California Government Code Section 51220, which declares a public interest in the preservation of agricultural lands;
6. The California General Plan law Section 65300, et seq., California Government Code Section 65400, et seq., and the Kern County General Plan, as updated in 2007, which includes as one of its goals to protect all viable farmlands designated as prime, of statewide importance, unique, or of local importance from conversion to and encroachment of non-agricultural uses; and,
7. Resolution No. 2009-237, approved by the Board of Supervisors of the Kern County on June 30, 2009, which expresses support for the acquisition of this Easement and that the acquisition is consistent with the Kern County General Plan;

H. The Grantee is a California publicly supported nonprofit organization within the meaning of California Civil Code Section 815.3 and California Public Resources Code Section 10221, and is a tax exempt and "qualified conservation organization" within the meaning of United States Internal Revenue Code Sections 501(c)(3) and 170(b)(1)(A)(iv), and 170(h)(3); and,);

- I. Grantee's primary purpose in entering into this Easement is the preservation and

protection of land in its agricultural and/or open space condition;

Grant of Agricultural Conservation Easement

NOW, THEREFORE, for the reasons described above and elsewhere in this Easement, and in consideration of their mutual conditions, covenants, promises, restrictions, and terms contained herein, and also for good and valuable consideration, the adequacy and receipt of which is hereby acknowledged, the Grantor voluntarily grants and conveys to the Grantee, and the Grantee voluntarily accepts, a perpetual conservation easement, as defined by California Civil Code Sections 815.1 and 815.2, and California Public Resources Code Section 10211, and of the nature and character described in this Easement, and agree and contract as follows:

1. *Purpose.*

This Easement is entered into in perpetuity exclusively for conservation purposes as that term is defined in Code Section 170(h)(4) (the "Conservation Purpose"). Specifically the Conservation Purpose is to enable the Property to remain in productive agricultural use by preventing uses of the Property prohibited by the provisions of this Easement or that will impair or interfere with the Property's agricultural productive capacity, soils, and agricultural character, values, and utility, and also to preserve the Property in its existing, unfragmented state. To the extent that the preservation of the open space character of the Property is consistent with such use, it is within the Conservation Purpose of this Easement to protect those values.

2. *Right to Use Property for Agricultural Purposes.*

The Grantor retains the right to use the Property for agricultural purposes, or to permit others to use the Property for agricultural purposes, in accordance with applicable law as long as the agricultural productive capacity and open space character of the Property are not thereby significantly impaired.

The parties acknowledge and agree that the Conservation Purpose permits changes in farming techniques necessary or desirable to maintain economically viable farming operations. Accordingly, except as specifically limited herein, the Grantor is not limited to those farming techniques currently known or foreseeable, but rather the Grantor may use new or different farming techniques that are consistent with this Easement.

3. *Prohibited Uses.*

The Grantor shall not perform, nor knowingly allow others to perform, any act on or affecting the Property that is inconsistent with this Easement. Any use or activity that would diminish or impair the agricultural productive capacity and open space character of the Property or that would cause significant soil degradation or erosion, or that is otherwise inconsistent with the Conservation Purpose is prohibited. This Easement authorizes the Grantee to enforce these

covenants in the manner described herein. However, unless otherwise specified, nothing in this Easement shall require the Grantor to take any action to restore the condition of the Property after any Act of God or other event over which it had no control. The Grantor understands that nothing in this Easement relieves it of any obligation or restriction on the use of the Property imposed by law.

4. *Permission of the Grantee.*

Where the Grantor is required to obtain the Grantee's permission for a proposed action hereunder, said permission shall: (i) not be unreasonably delayed by the Grantee, (ii) be sought and given in writing, with copies of all documents to be provided to the Department; and, (iii) in all cases be obtained by the Grantor prior to taking the proposed action. In seeking approval, the Grantor will provide the Grantee with adequate documentation, information and, if applicable, plans so as to enable the Grantee to confirm compliance with this Easement and to keep its records current. Whenever the Grantee's permission is expressly required by the terms of this Easement or prior to exercising any reserved right which might have a material adverse impact on the Conservation Purpose, the Grantor shall submit in writing a notice to the Grantee not less than thirty (30) days prior to the date the Grantor intends to undertake the activity in question. The notice shall describe the nature, scope, design, location, timetable, and any other material aspect of the proposed activity, including without limitation in the case of permitted development the square footage of area which will be developed with an impervious surface in sufficient detail to permit the Grantee to make an informed judgment as to compliance with the purpose and terms of this Easement and to keep its records current. Within thirty (30) working days after registered receipt of the notice and information by the Grantee, Grantee will notify Grantor of its' decision to accept, reject, seek further clarification, or request additional information. Failure to respond within said thirty (30) working day period shall be deemed to constitute Grantee's grant of permission provided that the activity is conducted as described in the Grantor's written notice and is not inconsistent with the Conservation Purpose. .

Grantee's permission for a proposed action shall not be unreasonably withheld or delayed by the Grantee. The Grantee shall grant permission to the Grantor only where the Grantee, acting in the Grantee's reasonable discretion and in good faith, determines that the proposed action will not significantly diminish or impair the agricultural productive capacity and open space character of the Property and would not cause significant soil degradation or erosion. If, in the judgment of the Grantee, the proposed use or activity should not be permitted in the form proposed, but could be permitted if modified, then the Grantee's response shall propose to the Grantor the suggested modification(s) and/or conditions that would permit the use or activity. If the Grantor disagrees with the Grantee's decision, the parties may agree to mediate the disagreement.

No decision by Grantee shall establish a precedent for or commitment to the outcome of future decisions. Each such request shall be considered and determined on its own and without following or establishing precedent.

5. *Construction or Placement of Buildings and Other Improvements.*

The Grantor may undertake construction, demolition, erection, installation, placement, rebuilding, or remodeling of buildings, structures, or other improvements on the Property only as provided in this Section 5. All other construction, erection, installation or placement of buildings, fixtures, structures or other improvements on the Property is prohibited. Before undertaking any construction, erection, installation or placement that expressly requires advance permission herein, the Grantor shall notify the Grantee and obtain prior written permission from the Grantee pursuant to Section 4.

Impervious surfaces, which would include residential buildings, agricultural buildings (with and without flooring), and paved areas on the entire Property, both within and outside the Building Envelopes, shall not exceed seventeen and thirteen hundredths acres (17.13 acs.), or approximately three percent (3.0%) of the assessed acreage of the Property. Impervious surfaces are permanent, non-seasonal rooftops, and concrete and asphalt surfaces. Conservation practices listed in the NRCS Field Office Technical Guide are exempt from this impervious surfaces limitation.

For purposes of this Section 5, the term "improvements" shall not refer to, and specifically excludes, crops, plants, trees, vines or other living improvements planted for agricultural purposes, nor shall it refer to irrigation improvements necessary or desirable to irrigate the Property for agricultural purposes, all of which may be made without the permission of the Grantee.

(a) *Fence.* Existing fences may be constructed, demolished, erected, installed, placed, rebuilt, remodeled, repaired or replaced without permission from the Grantee. New fences may be built anywhere on the Property for purposes of reasonable and customary agricultural management, and for security of farm produce, domesticated animals, equipment, and improvements on the Property, without permission from the Grantee.

(b) *Agricultural Structures and Improvements.* Existing agricultural structures and improvements as shown in Exhibit B, if any, may be demolished, rebuilt, repaired, reasonably enlarged, and replaced at their current locations for agricultural purposes without prior permission from the Grantee. New buildings and other structures and improvements to be used solely for agricultural production on the Property or sale of farm products predominantly grown or raised on the Property, including barns and equipment sheds, but not including any dwelling or farm labor housing, may be built, constructed, erected, installed or placed on the Property within either of the Building Envelopes. Construction of additional buildings, structures or improvements outside the Building Envelopes may only be built with the written permission of the Grantee pursuant to Section 4 if the Grantee also determines both of the following: (i) the building or improvement shall be used for agricultural production purposes or sale of farm products predominantly grown or raised by the Grantor on the Property; and, (ii) the building or improvement cannot be accommodated within the Building Envelopes.

(c) *Single-Family Dwelling.* There are no existing residential dwellings on the

Property. With advance written notice to the Grantee, one (1) new single-family residential dwelling, not to exceed three thousand square feet (3,000 sq. ft.) of living area (i.e. excluding garage space, decks and open or screened-in porch space), with customary ancillary structures, including a garage may be built or placed entirely within the ten acre (10 ac.) "Residential Envelope" depicted in Exhibit B. No other residential dwellings may be constructed or placed on the Property (except for agricultural employee housing per Section 5(d)). If said single-family dwelling is demolished, rebuilt, reasonably enlarged (subject to the three thousand square feet [3,000 sq. ft.] of living area limitation), and replaced within the Residential Envelope, the Grantor shall give the Grantee at least thirty (30) days prior written notice of the Grantor's intent. Once constructed, said single-family dwelling may be remodeled without prior permission from the Grantee. Notwithstanding the impervious surfaces limitation set forth above, impervious surfaces within the Residential Envelope shall not exceed five acres (5 acs.).

(d) *Agricultural Employee Housing.* If the existing agricultural employee house within the "Agricultural Employee Housing Envelope" depicted in Exhibit B is to be rebuilt within its existing footprint, the Grantor shall give the Grantee at least thirty (30) days prior written notice of the Grantor's intent. If the agricultural employee house is to be rebuilt or remodeled outside its existing footprint within the Agricultural Employee Housing Envelope, the Grantor must obtain the Grantee's permission pursuant to Section 4. If the agricultural employee house is to be remodeled within its existing footprint for ordinary maintenance, repairs and servicing, the Grantor may do so without the need of either giving prior notice to or obtaining the prior permission of the Grantee. The living area of the agricultural employee house shall not exceed two thousand five hundred square feet (2,500 sq. ft.). No other agricultural employee housing may be constructed or placed on the Property.

(e) *Utility Services and Septic Systems.* Wires, lines, pipes, cables or other facilities providing electrical, gas, water, sewer, communications, or other utility services solely to and serving the improvements permitted herein, or to transmit power to the Property, may be built, constructed, demolished, erected, installed, maintained, placed, repaired, removed, relocated and replaced without permission from the Grantee. Septic or other underground sanitary systems serving the improvements permitted herein may be built, constructed, demolished, erected, installed, maintained, placed, repaired, removed, relocated and replaced without permission from the Grantee, and shall be placed within the Building Envelopes, where possible. Notwithstanding the foregoing, commercial power generation, collection or transmission facilities, including solar or wind farms or facilities, are prohibited.

(f) *Recreational Improvements.* Private recreational improvements (e.g. swimming pool, tennis court) for the personal, non-commercial use of the Grantor and the Grantor's family, guests and invitees are permitted within the Residential Envelope. Passive, non-motorized, recreational and educational activities, such as hiking and bird-watching, are permitted. The Grantor expressly reserves the right for the Grantor, and the Grantor's family, guests and invitees to hunt on the Property.

(g) *Solar Power Generation Equipment.* Solar power generation equipment may be built, constructed, erected, installed or placed within the "Solar Envelopes" as defined in Exhibit

B with the Grantee's prior permission pursuant to Section 4. The Solar Envelopes are adjacent to the pump stations. However, under no circumstances shall a solar power generation facility with the primary purpose of producing energy for sale to third parties be granted pursuant to Section 4. All permissible solar generation equipment may be demolished, rebuilt, remodeled, reasonably enlarged, and replaced, with prior permission from the Grantee.

(h) *Water Pump Station.* The Grantor may drill new water pump stations on the Property for agricultural and domestic uses with the Grantee's prior permission pursuant to Section 4. All permissible new water pump stations may be demolished, rebuilt, remodeled, reasonably enlarged, and replaced, all without permission from the Grantee.

(i) *Customary Rural Enterprises.* Customary rural enterprises, such as agricultural or farm management offices or a Farm stand building, are permitted on the Property if the buildings are constructed and maintained in the Building Envelopes for residential and agricultural uses of the Property. Customary rural enterprises that otherwise require their own buildings are prohibited.

(j) *Agri-tourism Activities.* Low impact agri-tourism activities that do not require their own buildings, such as farm tours, work experiences, field trips, petting zoos, corn mazes, and hay rides, are permitted.

6. *Subdivision.*

The division, subdivision, defacto subdivision, or partition of the Property, including transfer of development rights, whether by physical, legal, or any other process, is prohibited.

The parties acknowledge and understand that the Property consists of two (2) existing legal parcels, and that no additional, separate legal parcels currently exist within the Property that may be recognized by a certificate of compliance pursuant to California Government Code Section 66499.35 based on previous patent or deed conveyances, subdivisions, or surveys. The Grantor will not apply for or otherwise seek recognition of additional legal parcels within the Property based on certificates of compliance or any other authority. The Grantor shall continue to maintain all of the legal parcels comprising the Property, and all interests therein, under common ownership.

Lot line adjustment may be permitted solely with the prior written permission of the Grantee pursuant to Section 4, and for purposes of maintaining, enhancing or expanding agricultural practices or productivity on the Property. The Grantor shall take no steps towards lot line adjustment unless and until the Grantee approves the request.

7. *Development Rights.*

The Grantor hereby grants to the Grantee all development rights except as specifically reserved in this Easement, that were previously, are now or hereafter allocated to, implied, reserved, appurtenant to, or inherent in the Property, and the parties agree that such rights are released,

terminated, and extinguished, and may not be used on or transferred by either party to any portion of the Property as it now or later may be bounded or described, or to any other property adjacent or otherwise, or used for the purpose of calculating permissible lot yield of the Property or any other property. This Easement shall not create any development rights.

8. *Mining.*

Grantor shall not extract or mine gravel, minerals, rock, sand, soil, and/or fuel, natural gas, oil and/or related hydrocarbon products on, in or under the Property (collectively the "Mineral Rights") by any surface or subsurface mining method.

The parties acknowledge and agree that all of the Mineral Rights were severed from the Property prior to June 13, 1976, and remain so separated up to and including the time of this Easement, and that the present owners of the Mineral Rights are not persons or entities who are related to Grantor as that term is defined in section 267(b) or 707(b) of the Internal Revenue Code. Moreover, the probability of extraction or removal of minerals by any surface mining method is so remote as to be negligible based upon the "Mineral Resource/Surface Mining Remoteness Evaluation" dated March 2009, and prepared by WZI, INC., a California corporation ("WZI"), and more specifically, James Allen Waggoner, a California Certified Engineering Geologist, which is incorporated herein by reference as if fully set forth at length (the "Mineral Rights Evaluation Report"). Also and based upon the Mineral Rights Evaluation Report, no oil and gas has been produced from shallower zones above the McClure Shale in the area of the Property and there is no evidence of oil and gas potential within the deeper zones under the Property. A true and complete copy of the Mineral Rights Evaluation Report was provided to the Grantee, the Department and the United States.

9. *Paving and Road Construction.*

No portion of the Property presently unpaved shall be paved or otherwise covered with concrete, asphalt, or any other paving material, unless such measures are required by air quality laws or regulations applicable to the Property, and, except for a paved driveway to and within the Building Envelopes utilizing the most direct route from a public road, no road for access or other purposes shall be constructed without the permission of the Grantee pursuant to Section 4. Notwithstanding the foregoing, construction of unpaved farm roads, as required by agricultural operations, is permitted without permission from the Grantee. The Grantor shall notify the Grantee of any relocation or addition of unpaved farm roads.

10. *Trash and Storage.*

The dumping or accumulation on the Property of any kind of trash, refuse, vehicle bodies or parts, or "Hazardous Materials," as defined in Section 25, is prohibited. Farm-related trash and refuse produced on the Property, may be temporarily stored on the Property subject to all applicable laws. The storage of agricultural products and byproducts produced on the Property and materials reasonably required for agricultural production on the Property including Hazardous Materials is permitted as long as it is done in accordance with all applicable

government laws and regulations.

11. *Commercial Signs.*

Commercial signs (including billboards) unrelated to permitted activities conducted on the Property are prohibited.

12. *Recreational Uses; Motorized Vehicle Use.*

Resort structures or facilities, golf courses, non-residential swimming pools, athletic fields, public or commercial airstrips, commercial equestrian structures or facilities, public or commercial helicopter pads, and any other commercial recreational structures or facilities are prohibited on the Property. Recreational structures or facilities for the personal use of the Grantor and its guests and invitees (e.g. swimming pool, tennis court) are permitted within the Residential Envelope pursuant to Section 5(f). The use of motorized vehicles off roadways and outside of the Building Envelopes is prohibited, except where used for agricultural production, property maintenance and security, or for the purpose of monitoring this Easement. The use of motorized vehicles off roadways shall be carried out in a manner that does not diminish or impair the agricultural productive capacity and open space character of the Property or cause significant soil degradation or erosion.

13. *Water Rights.*

The Grantor shall retain and reserve all ground water, and all appropriate, prescriptive, contractual or other water rights appurtenant to the Property at the time this Easement becomes effective. The Grantor shall not permanently transfer, encumber, lease, sell, or otherwise separate such quantity of water or water rights from title to the Property itself. No permanent separation of water or water rights shall be permitted. All water shall be retained on the Property for domestic and agricultural beneficial uses, and shall only be used in conjunction with the Buildings and Improvements permitted pursuant to Section 5 of this Easement except in the following circumstances:

- (a) *Distribution Off Property.* The Grantor may distribute excess water (water in excess of the water needed to fulfill the Conservation Purpose) for use upon other property owned or leased by the Grantor, or contiguous property on an annual basis, but only for agricultural production and only within Kern County, so long as such distribution is consistent with, and does not otherwise interfere with the Conservation Purpose;
- (b) *Annual Transfers of Excess Water.* If, in any year, water in excess of the water needed to fulfill the Conservation Purpose is available on the Property, the Grantor may, upon prior permission of the Grantee as exercised in its reasonable discretion, transfer such excess water on an annual basis only for use upon lands located solely within the jurisdictional boundaries of **NORTH KERN WATER STORAGE**

DISTRICT, a California water storage district, so long as such excess water is used for agricultural production or open space preservation purposes, and the transfer of such excess water does not interfere with the Conservation Purpose or otherwise adversely impact the long-term agricultural productive capacity or open space character of the Property; and,

- (c) *Temporary Transfers of Water.* During any year, the Grantor may, upon the prior permission of the Grantee as exercised in its reasonable discretion, distribute or temporarily transfer excess water (water in excess of the water needed to fulfill the Conservation Purpose) off the Property as contemplated by Sections 13(a) and (b). Such permission from the Grantee to the Grantor shall be effective for no more than one hundred and eighty (180) days from the date such permission is delivered to the Grantor.

The Grantor retains the right to use, maintain, establish, construct, and improve water sources, water courses and water bodies, including, but not limited to, drilling water wells, within the Property for the uses permitted by this Easement, provided that the Grantor does not significantly impair or disturb the natural course of the surface water drainage or runoff flowing over the Property. The Grantor may alter the natural flow of water over the Property in order to improve drainage of agricultural soils, reduce soil erosion, or improve the agricultural management potential of the Property without permission from the Grantee, provided such alteration is consistent with the Conservation Purpose.

14. *Rights Retained by the Grantor.*

Subject to Section 7 and to interpretation under Section 28, as the owner in fee simple of the Property, the Grantor reserves all interests in the Property not transferred, conveyed, restricted or prohibited by this Easement. These ownership rights include, but are not limited to, the right to sell, lease, or otherwise transfer the Property to anyone the Grantor chooses, as well as the right to privacy, the right to exclude any member of the public from trespassing on the Property, and any other rights consistent with the Conservation Purpose. Nothing contained herein shall be construed as a grant to the general public of any right to enter upon any part of the Property.

15. *Conservation Plan.*

A Highly Erodible Land Determination has been completed by the NRCS and it has been determined that the Property does not include any highly erodible land. In the event the NRCS determines that there is highly erodible land on the Property, the following provisions shall apply:

As required by section 1238I of the Food Security Act of 1985, as amended, the Grantor, its heirs, successors, or assigns, shall conduct agricultural operations on highly erodible land on the Property in a manner consistent with a conservation plan prepared in consultation with NRCS

and the Conservation District (the "Conservation Plan"). The Conservation Plan shall be developed and implemented using the standards and specifications of the NRCS Field Office Technical Guide and 7 Code of Federal Regulations, Part 12, that are in effect on the date of this Easement. However, the Conservation Plan may be developed and implemented using a higher level of conservation than required by said NRCS Field Office Technical Guide standards and specifications. NRCS shall have the right to enter upon the Property, with advance notice to the Grantor, in order to monitor compliance with the Conservation Plan.

In the event of noncompliance with the Conservation Plan, NRCS shall work with the Grantor to explore methods of compliance and give the Grantor a reasonable amount of time, not to exceed one (1) year to take corrective action. If the Grantor does not comply with the Conservation Plan, NRCS will inform the Grantee of the Grantor's noncompliance. The Grantee shall take all reasonable steps (including efforts at securing voluntary compliance and, if necessary, appropriate legal action) to secure compliance with the Conservation Plan following written notification from NRCS that: (a) there is a substantial, ongoing event or circumstance of non-compliance with the Conservation Plan; (b) NRCS has worked with the Grantor to correct such noncompliance; and, (c) the Grantor has exhausted its appeal rights under applicable NRCS regulations.

If the standards and specifications of the NRCS for highly erodible land are revised after the date of this Easement based on an Act of Congress, NRCS will work cooperatively with the Grantor to develop and implement a revised Conservation Plan. The provisions of this Section 15 apply to the highly erodible land conservation requirements of the Farm and Ranch Lands Protection Program and are not intended to affect any other natural resources conservation requirements to which the Grantor may be or become subject.

16. *Responsibilities of the Parties Not Affected.*

Other than as specified herein, this Easement is not intended to impose any legal or other responsibility on the Grantee, or in any way to affect any existing obligation of the Grantor as owner of the Property. Among other things, this shall apply to:

- (a) *Taxes.* The Grantor shall be solely responsible for payment of all taxes and assessments levied against the Property. If the Grantee ever pays any taxes or assessments on the Property, or if the Grantee pays levies on the Grantor's interest in order to protect the Grantee's interests in the Property, the Grantor will reimburse the Grantee for the same.
- (b) *Upkeep and Maintenance.* The Grantor shall be solely responsible for the upkeep and maintenance of the Property, to the extent it may be required by law. The Grantee, the Department and the United States shall have no obligation for the upkeep or maintenance of the Property. If the Grantee acts to maintain the Property in order to protect the Grantee's interest in the Property, the Grantor will reimburse the Grantee for reasonable costs incurred by the Grantee in connection therewith; and,

- (c) *Compliance with Law.* The Grantor shall comply with all applicable laws with respect to the Property. Nothing in this Easement relieves the Grantor of any obligation with respect to the Property or restriction on the use of the Property imposed by law, whether currently existing or hereafter enacted or otherwise promulgated by any federal, state, county, municipal, or other governmental body (whether legislative, administrative, or judicial). In no event shall this Easement be construed as granting any landowner rights not permitted by local building, land use and/or zoning regulations at the time of construction, demolition, occupation, etc.; and,
- (d) *Liability and Indemnification.* In view of the Grantee's, the Department's and the United States' negative rights, limited access to the land, and lack of active involvement in the day-to-day management activities on the Property, the Grantor shall indemnify, protect, defend and holds harmless Grantee, the Department and the United States and/or their respective officers, directors, members, employees, contractors, legal representatives, agents, successors and assigns (collectively, "Agents and Assigns") from and against any and all liabilities, claims, demands, losses, expenses, damages, fines, fees, penalties, orders, liens, suits, proceedings, actions, and costs of actions, sanctions asserted by or on behalf of any person or governmental authority, and other liabilities (whether legal or equitable in nature and including, without limitation, court costs, and reasonable attorneys' fees and attorneys' fees on appeal) to which the Grantee may be subject or incur relating to the Property, which may arise from, but are not limited to, the Grantor's negligent acts or omissions or Grantor's breach of any representation. The Grantor shall indemnify and hold harmless the Grantee, the Department, the United States and/or any of their respective Agents and Assigns for any and all warranty, covenant, agreements contained in this Easement, or violations of any Federal, State, or local laws, including all Environmental Laws. The Grantor shall be solely liable for injury or the death of any person, or physical damage to any property, or any other costs or liabilities resulting from any act, omission, condition, violation of the law or of this Easement or other matter related to or occurring on or about the Property, regardless of cause, unless due to the gross negligence or intentional misconduct of the Grantee, the United States and/or their respective Agents and Assigns.

Neither the Grantee, the Department, the United States nor their respective Agents and Assigns shall have responsibility for the operation of the Property, monitoring of hazardous conditions on it, or the protection of the Grantor, the public or any third parties from risks relating to conditions on the Property. Without limiting the foregoing, neither the Grantee, the Department, the United States, nor their respective Agents and Assigns

shall be liable to the Grantor or other person or entity in connection with consents given or withheld, or in connection with any entry upon the Property occurring pursuant to this Easement, or on account of any claim, liability, damage or expense suffered or incurred by or threatened against the Grantor or any other person or entity, unless the claim, liability, damage, or expense is the result of the gross negligence or intentional misconduct of the Grantee, the Department, the United States and/or their respective Agents and Assigns.

17. *Monitoring Reports.*

The Grantee shall manage its responsibilities as holder of this Easement so as to uphold the Conservation Purpose. The Grantee's responsibilities include, but are not limited to, annual monitoring, such additional monitoring as circumstances may require, record keeping, and enforcement of this Easement, for the purpose of preserving the Property's agricultural productive capacity and open space character in perpetuity. The Grantee shall report to the Department and the NRCS by June 30 annually after the annual monitoring visit, describing method of monitoring, condition of the Property, stating whether any violations of this Easement were found during the period, describing any corrective actions taken, the resolution of any violation, and any transfer of interest in the Property. Failure to do so shall not impair the validity of this Easement or limit its enforceability in any way. Upon the grantor's request, the Grantee shall provide the Grantor with a copy of any report delivered to the Department and the NRCS.

18. *Monitoring and Enforcement.*

The Grantee shall exercise its rights, and its duties, obligations and responsibilities under this Easement so as to maintain and uphold the Conservation Purpose. With reasonable advance notice (except in the event of an emergency or suspected emergency), the Grantee shall have the right to enter upon, inspect, observe, monitor and evaluate the Property to identify the current condition of, and uses and practices on the Property and to determine whether the condition, uses and practices are consistent with this Easement. The Department and/or the NRCS may accompany the Grantee on its annual monitoring visit to the Property to observe the Grantee carrying out the monitoring process. Monitoring visits shall be subject to the following conditions:

- (a) The Grantee shall give prior written notice to the Grantor at least one week before entering upon the Property, except in the event of an emergency or suspected emergency, in which case reasonable oral notice shall be given. The notice shall indicate the purpose of the entry and shall provide the timeframe during which the Grantee shall be upon the Property;
- (b) Entry shall take place during normal business hours unless otherwise required due to emergency circumstances; and,

- (c) The Grantee shall indemnify, defend with counsel of the Grantor's choice, and hold the Grantor harmless from, all expense, loss, liability, damages and claims, including the Grantor's attorneys' fees, if necessary, arising out of the Grantee's entry on the Property or the Grantee's violation of this Easement, unless caused by a violation of this Easement by the Grantor or by the Grantor's negligence or willful misconduct.

The Grantee may take all legal actions that it reasonably deems necessary to ensure compliance with the terms, conditions, covenants and Conservation Purpose. The Grantee shall have the right to prevent and correct violations of the terms of this Easement. The Grantor shall indemnify, protect, defend and hold harmless the Grantee, the Department, their respective officers, directors, members, employees, contractors, legal representatives, agents, successors and assigns from and against all liabilities, costs, losses, orders, liens, penalties, claims, demands, damages, expenses, or causes of action or cases, including without limitation reasonable attorneys' fees, arising out of the violation of the terms of this Easement by the Grantor.

If the Grantee finds what it believes is a violation or potential violation, it may at its discretion take appropriate legal action to ensure compliance with the terms, conditions, covenants and Conservation Purpose. Except when an ongoing or imminent violation could irreversibly diminish or impair the agricultural productive capacity and open space character of the Property, the Grantee shall give the Grantor written notice of the violation or potential violation and thirty (30) days to correct it, or if the alleged violation cannot be cured within thirty (30) days, such additional reasonable time necessary as long as the Grantor initiates such cure within such thirty (30) day period and diligently pursues such cure until completed, before filing any legal action.

If a court of competent jurisdiction determines that a violation may exist or has occurred or is about to occur, the Grantee may obtain an injunction, specific performance, or any other appropriate equitable or legal remedy, including (i) money damages, including damages for the loss of the conservation values; (ii) restoration of the Property to its condition existing prior to such violation; and (iii) an award for all the Grantee's reasonable expenses incurred in stopping and correcting the violation, including but not limited to reasonable attorneys' fees. The Grantee's remedies under this Section 18 shall be cumulative and shall be in addition to all remedies now or hereafter existing at law or in equity.

Without limiting the Grantor's liability therefore, the Grantee shall apply damages recovered to the cost of undertaking any corrective action on the Property. Should the restoration of lost values be impossible or impractical for whatever reason, the Grantee shall apply any and all damages recovered to furthering the Grantee's mission, with primary emphasis on agricultural conservation easement acquisition and enforcement.

In the event the Grantee fails to enforce any term, condition, covenant or restriction of this Easement, as determined by the Director of the Department, the Director of the Department and his or her successors and assigns shall have the right to enforce this Easement after giving notice

to the parties and providing a reasonable opportunity under the circumstances for the Grantee to enforce any term, condition, covenant, or the Conservation Purpose. In the event that the Director of the Department determines that the Grantee has failed to enforce any of the terms, conditions, covenants, or the Conservation Purpose, the Director of the Department and his or her successors and assigns shall be entitled to exercise the same right to enter the Property granted to the Grantee, including rights of immediate entry in the event of an emergency or suspected emergency where the Director of the Department or his or her successor or assign determines that immediate entry is required to prevent, terminate or mitigate a violation of this Easement.

The failure of the Grantee or the Department to discover a violation or potential violation, or failure or refusal to exercise any rights under the terms of this Easement or to take immediate legal action to prevent or correct a violation or potential violation known to the Grantee or the Department, shall not bar the Grantee or the Department from taking subsequent legal action and shall not constitute a waiver or forfeiture of the Grantee's or the Department's right to enforce any term, condition, covenant or Conservation Purpose or any other term herein.

19. *Right of Enforcement of the United States of America.*

Under this Easement, the United States is granted the right of enforcement in order to protect the public investment in the Easement. The Secretary of the United States Department of Agriculture ("Secretary") or his or her assigns, on behalf of the United States, will exercise these rights under the following circumstances: In the event that the Grantee fails to enforce any of the terms of this Easement, as determined in the sole discretion of the Secretary, the Secretary and his or her successors or assigns may exercise the United States' rights to enforce the terms of this Easement through any and all authorities available under federal or state law.

20. *Transfer of Easement.*

This Easement may only be assigned or transferred to a private nonprofit organization that, at the time of transfer, is a "qualified organization" under of the United States Internal Revenue Code Section 170(h) and meets the requirements of California Civil Code Section 815.3(a) and has similar purposes to preserve agricultural lands and open space. If no such private nonprofit organization exists or is willing to assume the responsibilities imposed by this Easement, then this Easement may be transferred to a public agency authorized to hold interests in real property as provided in California Civil Code Section 815.3(b). Such an assignment or transfer may proceed only if the organization or agency expressly agrees to assume the responsibility imposed on the Grantee by the terms of this Easement and is expressly willing and able to hold this Easement for the Conservation Purpose for which it was created. All assignment and assumption agreements transferring the Easement shall be duly recorded in the county in which the Property is located.

If the Grantee should desire to transfer this Easement, the Grantee, in consultation with the Grantor, shall request the written permission from the Director of the Department and the Secretary, which permission shall not be unreasonably denied. This request shall state the name

of the private nonprofit organization to which the transfer is proposed, the reasons therefor, and such other information as the Director of the Department or Secretary may request. If written consent is given for the proposed transfer by the Director of the Department and the Secretary, the Grantee may transfer this Easement to an entity meeting the requirements of the first paragraph of this Section 20.

If the Grantee ever ceases to exist or no longer qualifies under of the United States Internal Revenue Code Section 170(h), or applicable state law, the Department, and the United States shall, in consultation with the Grantor, transfer this Easement, pursuant to the California Public Resources Code Section 10235(b), to another qualified organization, as defined in California Civil Code Section 815.3, having similar purposes, that agrees to assume the responsibility imposed by this Easement.

21. *Transfer of Property Interest.*

Any time all or any portion of the Property, or any interest in it, is transferred by the Grantor to any third party, the Grantor shall notify the Grantee, the Department and the United States in writing at least thirty (30) days prior to the transfer of the Property or interest, and the document of conveyance shall expressly incorporate by reference this Easement. Any document conveying a lease of the Property shall expressly incorporate by reference this Easement. Failure of the Grantor to do so shall not impair the validity of this Easement or limit its enforceability in any way.

22. *Amendment of Easement.*

This Easement may be amended only with the written consent of the Grantor, the Grantee, the Director of the Department and the United States. Any such amendment shall be consistent with the Conservation Purpose, and shall comply with all applicable laws, including United States Internal Revenue Code Section 170(h), and any regulations promulgated in accordance with California Civil Code Section 815 et seq., and the California Farmland Conservancy Program Act as codified in California Public Resources Code Section 10200, et seq., and any regulations promulgated thereunder, and with the United States Department of Agriculture Farm and Ranch Lands Protection Program, and any regulations promulgated thereunder. No amendment shall diminish or affect the perpetual duration or the Conservation Purpose nor the status or rights of the Grantee under the terms of this Easement.

This Easement and any amendment to it shall be recorded in the Official Records of the County of Kern, State of California. Copies of any amendments to this Easement shall be provided to the Department and to the United States by the Grantee.

23. *Termination of Easement.*

(a) It is the intention of the parties that the Conservation Purpose shall be carried out forever as provided in California Public Resources Code Section 10211 and California Civil Code Section 815.2(b). Liberal construction is expressly required for purposes of effectuating

this Easement in perpetuity, notwithstanding conditions or hardship that may provide a basis for termination of this Easement. Accordingly, the Grantor hereby waives on behalf of the Grantor and the Grantor's successors and assigns all rights to terminate or extinguish this Easement, or request that this Easement be terminated or extinguished pursuant to the administrative termination provisions set forth in of California Public Resources Code Section 10270 et seq. Grantor's ability to terminate this Easement shall be limited to judicial termination proceedings in a court of competent jurisdiction. The Grantee, the Department and the United States shall be notified at least thirty (30) days prior to initiation of any proceedings to terminate this Easement.

Waiver of Administrative Termination Rights:

The Grantor's Initials: KG

(b) Other than pursuant to eminent domain or purchase in lieu of eminent domain, no other voluntary or involuntary sale, exchange, conversion, or conveyance of any kind of all or part of the Property, or of any interest in it, shall limit or terminate the provisions of this Easement. No inaction or silence by the Grantee, the Department or the United States shall be construed as abandonment of the Easement. The fact that the Property is not in agricultural use is not reason for termination of this Easement. Should this Easement be condemned or otherwise terminated on any portion of the Property, the balance of the Property shall remain subject to this Easement. In this event, all relevant related documents shall be updated and re-recorded by the Grantee to reflect the modified easement area and encumbrances junior to this Easement shall remain subordinate to the Easement as amended. Due to the federal interest in this Easement, any termination, extinguishment, condemnation, or eminent domain actions must be consented to by the United States.

(c) The grant of this Easement gives rise to a property right immediately vested in the Grantee. For the purpose of determining the amount to be paid to the Grantee, the Department's California Farmland Conservancy Program Fund, and the United States upon termination of the Easement pursuant to eminent domain or other judicial proceedings, and for the purpose of allocating proceeds from a sale or other disposition of the Property at the time of termination of the Easement and the Grantee's property right therein, the following shall apply:

- (i) The "Easement Percentage" is hereby defined and established as the ratio, as of the date of this Easement, of the value of the Easement to the value of the Property unencumbered by the Easement. Such ratio is a fraction, the numerator of which is the value of the Easement and the denominator of which is the value of the Property unencumbered by the Easement, as determined by an appraisal of the Property approved by the Department and the NRCS prior to funding the acquisition of this Easement. The parties agree that the ratio of the value of the Easement to the value of the Property unencumbered by the Easement is thirty and ninety-one hundredths percent (30.91%). The Easement Percentage shall remain constant; and,

- (ii) The parties stipulate and agree that, at the time of termination, the Easement shall have a fair market value determined as the greater of the following:
 - [A] The fair market value of the Property, excluding the value of the improvements on the Property, as though unencumbered by this Easement, at the time of the termination, as determined by an appraisal prepared by a qualified appraiser mutually acceptable to the parties, multiplied by the Easement Percentage; or,
 - [B] The value of the Easement at the time of the termination as determined by a qualified appraiser acceptable to the parties.

If the Grantor initiated termination of the Easement through a judicial proceeding, the Grantor shall pay the cost of the appraisal, and the appraisal is subject to approval by the Department and the NRCS. Nothing herein shall prevent the Grantor, the Grantee, the Department or the NRCS from having an appraisal prepared at its own expense.

(d) Upon approval of termination of this Easement or any portion thereof, the Grantor shall reimburse the NRCS, the Department and the Grantee an amount equal to their proportionate share of the value of the Easement, or portion thereof. Specifically, the amount shall be distributed by Grantor as follows: (i) to the State of California, Department of Conservation, California Farmland Conservancy Program Fund, thirty-five percent (35%); (ii) to the NRCS, thirty-five (35%); and (iii) to the Grantee, thirty percent (30%). This Easement shall not be deemed terminated until such payments are received by all of the foregoing persons. The Grantee shall use any funds received from the termination of this Easement in a manner consistent with the Conservation Purpose.

(e) Termination of the Easement through condemnation is subject to the requirements of Public Resources Code Section 10261, the eminent domain laws of the State of California, federal law, and this Easement. The Grantee shall have an opportunity to accompany the appraiser for the condemning agency when the appraiser goes on the Property with the Grantor. Purchase in lieu of condemnation, or settlement of an eminent domain proceeding, shall occur pursuant to applicable laws and procedures, including but not limited to California Government Code Sections 7267.1 and 7267.2, and shall require approval of the Grantee, the Director of the Department and the United States. The Grantee shall be paid by the condemnor the value of the Easement at the time of condemnation (see, Public Resources Code Section 10261(a)(2)). The Grantee shall distribute the proceeds as set forth in Section 23(d).

(f) If the Grantee obtains payment on a claim under a title insurance policy insuring this Easement, payment shall be distributed as set forth in Section 23(d), excluding reimbursement of attorneys' fees and costs, which the Grantee shall be entitled to retain.

24. *Notices.*

Any notices to the parties required by this Easement shall be in writing and shall be personally delivered or sent by First-Class Mail, return receipt requested and postage prepaid, courier service, or by express overnight delivery service (such as Federal Express) to the following addresses, unless a party has been notified by the other of a change of address:

To the Grantor: WASCO REAL PROPERTIES I, LLC
c/o Pacific Ag Management, Inc.
P.O. Box 1200
Wasco, CA 93280
Attn: Manager

To the Grantee: SEQUOIA RIVERLANDS TRUST
427 South Garden Street
Visalia, CA 93277

This Section 24 is subject to Section 4 with regards to notices and permissions of the Grantee.

Any notices required by this Easement to be sent to the Department shall be in writing and shall be personally delivered or sent by First-Class Mail, return receipt requested and postage prepaid, courier service, or by express overnight delivery service (such as Federal Express) at the following address, unless a party has been notified by the Department of a change of address:

CALIFORNIA DEPARTMENT OF CONSERVATION
801 "K" Street
Sacramento, CA 95814
Attn: California Farmland Conservancy Program

Any notices required by this Easement to be sent to the NRCS, USDA or the United States shall be in writing and shall be personally delivered or sent by First-Class Mail, return receipt requested and postage prepaid, courier service, or by express overnight delivery service (such as Federal Express) at the following address, unless a party has been notified by the NRCS of a change of address:

USDA Natural Resources Conservation Service
State Conservationist
430 "G" Street, Suite 4164
Davis CA 95616-4164

25. *The Grantor's Environmental Warranty.*

(a) Nothing in this Easement shall be construed as giving rise to any right or ability in the Grantee, Department or the United States to exercise physical or management control over the day-to-day operations of the Property, or any of the Grantor's activities on the Property, or otherwise to become an "owner" or "operator" with respect to the Property as those words are defined and used in environmental laws, including the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA"), as amended or any corresponding state and local statute or ordinance.

(b) The Grantor warrants that it has no actual knowledge of a release or threatened release of any Hazardous Materials on, at, beneath or from the Property as of the effective date of this Easement. Grantor warrants, based upon its actual knowledge that it is in compliance with all applicable Environmental Laws and also warrants to remain in compliance with, all applicable Environmental Laws. Grantor warrants that there are no notices by any governmental authority of any violation or alleged violation of, noncompliance or alleged noncompliance with or any liability under any Environmental Law relating to the operations or conditions of the Property.

(c) The Grantor hereby promises to defend and indemnify the Grantee, the Department and the United States against all litigation, claims, administrative actions, testing, investigation, remediation, demands, penalties and damages, including reasonable attorneys' fees, arising from or connected with the release or threatened release of any Hazardous Materials on, at, beneath or from the Property, or arising from or connected with a violation of any Environmental Laws on the Property by the Grantor or any other prior owner of the Property. The Grantor's indemnification obligation shall not be affected by any authorizations provided by the Grantee, the Department or the United States to Grantor with respect to the Property or any restoration activities carried out by the Grantee at the Property; provided, however, that the Grantee shall be responsible for any Hazardous Materials contributed after this date to the Property by the Grantee.

(d) "Environmental Law" or "Environmental Laws" means any and all Federal, state, local or municipal laws, rules, orders, regulations, statutes, ordinances, codes, guidelines, policies or requirements of any governmental authority regulating or imposing standards of liability or standards of conduct (including common law) concerning air, water, solid waste, Hazardous Materials, worker and community right-to-know, hazard communication, noise, radioactive material, resource protection, subdivision, inland wetlands and watercourses, health protection and similar environmental health, safety, building and land use as may now or at any time hereafter be in effect.

(e) "Hazardous Materials" means any petroleum, petroleum products, fuel oil, waste oils, explosives, reactive materials, ignitable materials, corrosive materials, hazardous chemicals, hazardous wastes, hazardous substances, extremely hazardous substances, toxic substances, toxic chemicals, radioactive materials, infectious materials and any other element, compound, mixture, solution or substance which may pose a present or potential hazard to human health or the

environment or any other material defined and regulated by Environmental Laws.

(f) If at any time after the effective date of this Easement there occurs a release, discharge or other incident in, on, or about the Property of any substance now or hereafter defined, listed, or otherwise classified pursuant to any federal, state, or local law, regulation, or requirement as hazardous, toxic, polluting, or otherwise contaminating to the air, water, or soil, or in any way harmful or threatening to human health or the environment, the Grantor agrees to take any steps that are required of the Grantor with respect thereto under federal, state, or local law necessary to ensure its containment and remediation, including any cleanup. This Section 25(f) is in addition to the Grantor's duties, obligations and responsibilities to Grantee, the Department, and the United States under Section 25(c).

26. *The Grantor's Title Warranty; No Prior Conservation Easements.*

The Grantor represents and warrants that the Grantor has good fee simple title to the Property, free and clear from any and all liens or encumbrances except those existing liens and encumbrances set forth in Exhibit "C" attached hereto and incorporated herein by reference as if fully set forth at length ("Prior Encumbrances"). The Grantor hereby promises to defend the same against all claims that may be made against it. All financial liens or financial encumbrances existing as of the date of the execution of this Easement (excepting liens for property taxes that are not yet due and payable) have been subordinated to this Easement. The Grantor also represents and warrants that the Property is not subject to any other conservation easement whatsoever. As more specifically described in Section 8, the Grantor also represents and warrants that the Grantor owns none of the Mineral Rights. If the Grantor discovers at any time that any outstanding interest in the Property exists that is not disclosed herein, the Grantor shall immediately notify the Grantee, the Department and the United States of the discovery, and shall take all necessary steps to ensure that said interest is made subject to this Easement and that the existence of the interest or the exercise of any rights under it does not interfere with the Conservation Purpose.

27. *Granting Subsequent Easements, Interests in Land, or Use Restrictions.*

The grant of any subsequent easements, interests in land, or use restrictions that might diminish or impair the agricultural productive capacity or open space character of the Property is prohibited. The Grantor may grant subsequent easements, including conservation easements, interests in land, or use restrictions on the Property provided that they do not restrict agricultural husbandry practices or interfere with any of the terms of this Easement, as determined by the Grantee. "Husbandry practices" means agricultural activities, such as those specified in California Civil Code Section 3482.5(e), conducted or maintained for commercial purposes in a manner consistent with proper and accepted customs and standards, as established and followed by similar agricultural operations in the same locality. The Grantor owns an adjacent parcel of land identified as Kern County Assessor's Parcel Number 072-150-07 and legally described in Exhibit "D" and incorporated herein by reference as if fully set forth at length (the "Adjacent Parcel"). Upon the sale of the Property or the Adjacent Parcel to a third party, the Grantor may grant or reserve, as applicable, an easement for a pipeline for the transport of water across the Property to benefit and serve the Adjacent Parcel in support of permitted uses, provided that any such easement shall not significantly diminish or impair the agricultural productive capacity and open space character of the Property. The Grantee's written permission shall be obtained at least thirty (30) days in advance of the Grantor's execution of any proposed subsequent easement, interests in land, or use restriction on the Property, and such subsequent easements, interests in land, and use restrictions shall make reference to and be subordinate to this Easement. The Grantee shall notify the Department immediately upon receipt of request by the Grantor to grant a subsequent easement, interest in land, or use restriction on the Property. The Grantee shall notify the Department and the United States in the event that it approves the grant of any subsequent easement, interest in land, or use restriction on the Property. The Grantee shall disapprove the granting of any proposed subsequent easement, interest in land, or use restriction that appears to restrict agricultural husbandry practices, or diminishes or impairs the agricultural productive capacity or open space character of the Property.

28. *Interpretation; Venue.*

This Easement shall be interpreted under the laws of the State of California and the United States, as applicable, resolving any ambiguities and questions of the validity of specific provisions so as to give maximum effect to its conservation purposes. References to specific authorities in this Easement shall be to the statute, rule, regulation, ordinance or other legal provision that is in effect at the time this Easement becomes effective. No provision of this Easement shall constitute governmental approval of any improvements, construction or other activities that may be permitted under this Easement. This Agreement is entered into and is to be performed in Kern County, California, and accordingly the parties agree that the venue for any and all disputes under this Agreement shall be either the Kern County Superior Court, Metropolitan Division, or the United States District Court for the Eastern District of California, Fresno Division.

29. *Successors; Termination of Rights and Obligations.*

The covenants, terms, conditions, and restrictions of this Easement shall be binding upon, and inure to the benefit of, the parties hereto and their respective agents, heirs, executors, administrators, assigns, and all other successors as their interests may appear and shall continue as a servitude running in perpetuity with the Property. A party's rights and obligations under this Easement terminate upon transfer of that party's interest in the Easement or Property, except that liability for acts or omissions occurring prior to transfer shall survive transfer.

30. *Severability.*

If any term, provision, covenant, condition, or restriction of this Easement is held by a court of competent jurisdiction to be unlawful, invalid, void, unenforceable, or not effective the remainder of this Easement shall remain in full force and effect and shall in no way be affected, impaired, or invalidated.

31. *Perpetual Duration; No Merger or Forfeiture.*

Pursuant to California Civil Code Sections 815.1 and 815.2, and California Public Resources Code Section 10211, this Easement shall run with the land in perpetuity. Every provision of this Easement that applies to the Grantor or the Grantee shall also apply to their respective agents, heirs, executors, administrators, assigns, and all other successors as their interests may appear.

No merger of title, estate or interest shall be deemed effected by any previous, contemporaneous, or subsequent deed, grant, or assignment of an interest or estate in the Property, or any portion thereof, to the Grantee, or its successors or assigns. It is the express intent of the parties that this Easement not be extinguished by, merged into, modified, or otherwise deemed affected by any other interest or estate in the Property now or hereafter held by the Grantee or its successors or assigns. In the event that the Grantee shall ever acquire the fee simple title to the Property, the Grantee will assign and convey its interest under this Easement to a third party in accordance with Section 20.

32. *Administrative Costs.*

The administration of this Easement by the Grantee requires considerable time and expense. The Grantee shall bear all routine administrative expenses related to the Easement including, but not limited to the following activities: routine easement monitoring and reporting, and notices of permitted activities, and routine staff work related to the Grantor's refinancing and or sale of the Property. The Grantor agrees to pay the reasonable expenses for non-routine administration of the Easement including, but not limited to actions requiring the Grantee's prior permission, enforcement of Easement violations, and the Grantor's requests to amend this Easement.

33. *Entire Agreement; Modification.*

This Easement is the final and complete expression of the agreement between the parties with

respect to the subject matter contained herein. Any and all prior or contemporaneous agreements with respect to this subject matter, written or oral, are merged into and superseded by this written instrument. This Easement may only be modified as set forth in Section 22.

34. *Exhibits; Construction.*

All exhibits attached to this Easement are hereby incorporated in this Easement by this reference as if fully set forth at length. In this Easement, the masculine, feminine or neuter gender and the singular or plural number shall be deemed to include the other whenever the context so requires. The captions appearing at the commencement of the provisions of this Easement are descriptive only and for convenience in reference. Should there be any conflict between any such caption and provision at the head of which it appears, the provision, and not the caption, shall control and govern in the construction of this Easement.

35. *No Waiver.*

Notwithstanding any agreement between the parties, the waiver by any party of a breach of any provision of this Agreement shall not be deemed a continuing waiver or waiver of any subsequent breach whether of the same or another provision thereof.

36. *Joint Obligation.*

If and when the Grantor consists of more than one (1) person, the duties, obligations and responsibility imposed by this Easement upon the Grantor shall be joint and several.

37. *Recording.*

This Easement and any amendments hereto shall be recorded in the Official Records of Kern Counties, State of California.

38. *Counterparts*

This Easement may be executed in counterparts, each of which shall be deemed an original and which together shall constitute one and the same Easement.

39. *Acceptance.*

As attested by the signature of its Executive Director affixed hereto, in exchange for consideration, the Grantee hereby accepts without reservation the rights and responsibilities conveyed by this Easement.

To Have and To Hold, this Deed of Agricultural Conservation Easement unto the Grantee, its successors and assigns, forever.

In Witness Whereof, the parties, intending to legally bind themselves, have set their hands on the date first written above.

DATED: 11/30, 2011

WASCO REAL PROPERTIES I, LLC, a
California limited liability company (the "Grantor")

By: 
KEITH GARDINER
Its: Manager

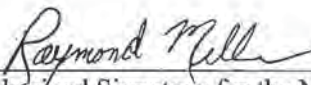
DATED: 12-7-11, 2011

SEQUOIA RIVERLANDS TRUST, a California
nonprofit public benefit corporation (the "Grantee")

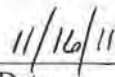
By: 
R. SCOTT SPEAR
Its: President, Board of Directors

ACCEPTANCE OF PROPERTY INTEREST BY THE NATURAL RESOURCES
CONSERVATION SERVICE

The Natural Resources Conservation Service, an agency of the United States Government, hereby accepts and approves the foregoing conservation easement deed, and the rights conveyed therein, on behalf of the United States of America.



Authorized Signatory for the NRCS
Name: Raymond Miller
Title: Contract Specialist



Date

ACKNOWLEDGEMENTS

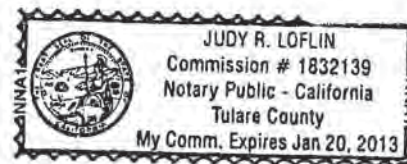
STATE OF CALIFORNIA } ss
 COUNTY OF } TULARE

On Nov 30, 2011, before me, Judy R. Loflin, Notary Public of the State of California, personally appeared KEITH GARDINER, proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument. I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature:

Judy R. Loflin



STATE OF CALIFORNIA } ss
 COUNTY OF } TULARE

On December 7, 2011, before me, Judy R. Loflin, Notary Public of the State of California, personally appeared R. Scott Speare proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument. I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature:

Judy R. Loflin

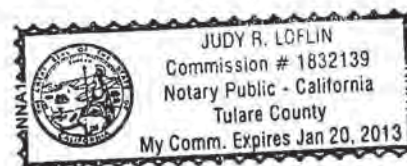


EXHIBIT A**Legal Description of the Property**

The land referred to herein is situated in the State of California County of Kern, Unincorporated Area, and described as follows:

All of Section 27, Township 27 South, Range 25 East, Mount Diablo Base and Meridian, in the unincorporated area, County of Kern, State of California, according to the Official Plat thereof.

Except therefrom those portions thereof lying Westerly of the Easterly boundary line of parcels of land descried in those certain indentures recorded in the office of the County Recorder of Kern County as follows:

On August 1, 1936 in Book 656, Page(s) 26 of Official Records.

On August 3, 1936 in Book 655, Page(s) 149 of Official Records.

On August 4, 1939 in Book 864, Page(s) 411 of Official Records.

Also except all oil, gas and other minerals of whatsoever kind or character in or under or which may be produced from said land as excepted in Deed from Tenneco West, Inc., a Delaware corporation, recorded December 17, 1971 in Book 4611, Page(s) 176 of Official Records.

Also except any remaining oil gas, and other minerals owned by Sun World, Inc., in and under the surface of said land, together with the full and free right to enter thereon and use so much of the surface thereof as may be reasonably necessary for operating, producing and marketing said oil and gas and other minerals, upon the terms contained therein as reserved by Sun World, Inc., in the Deed to Western Fruit Acquisition, Inc., recorded January 30, 1986 in Book 5839, Page(s) 145 of Official Records.

Kern County Assessor's Parcel Numbers 072-160-10 and 072-160-13

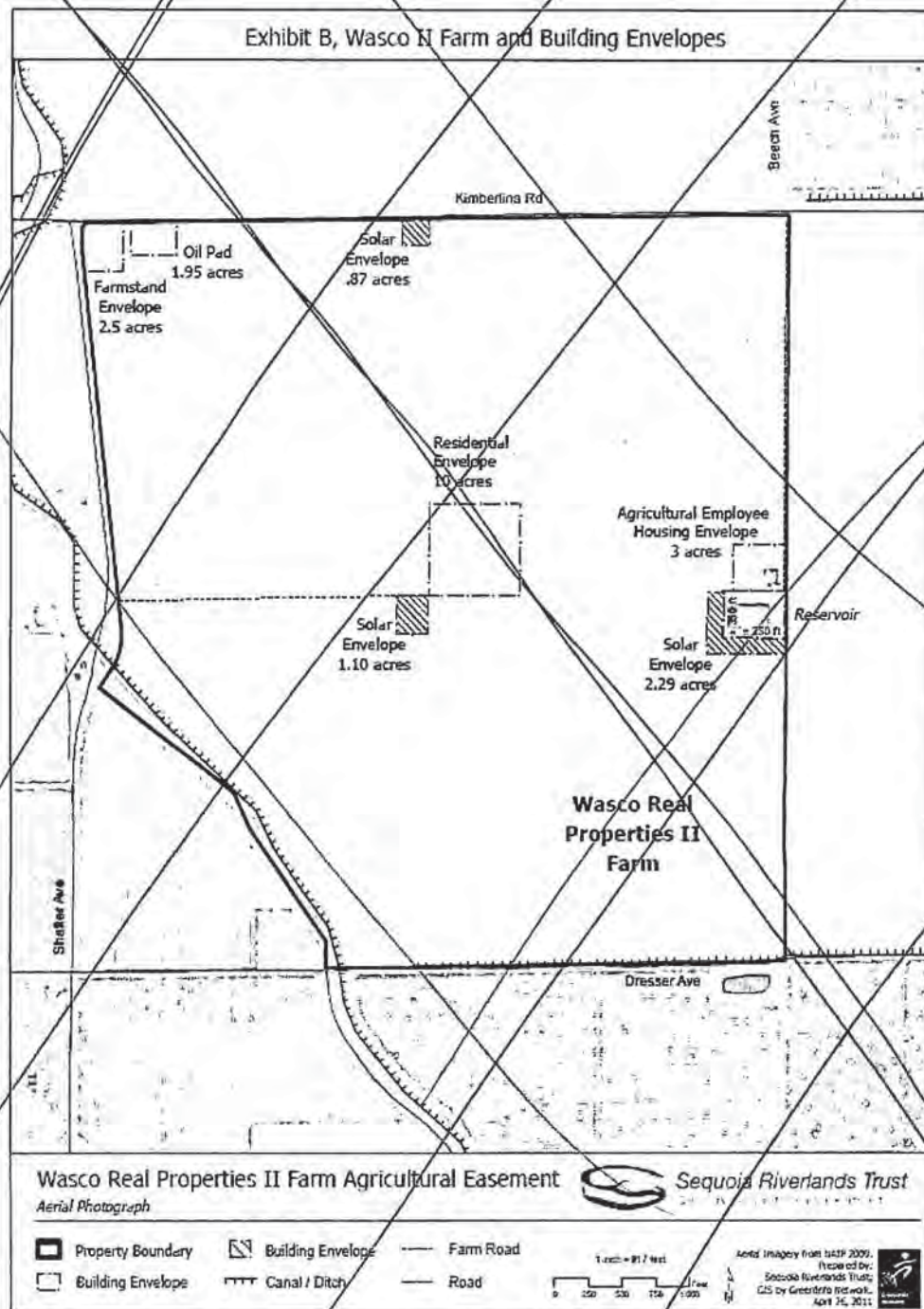
EXHIBIT B-1**Depiction of the Building Envelopes**

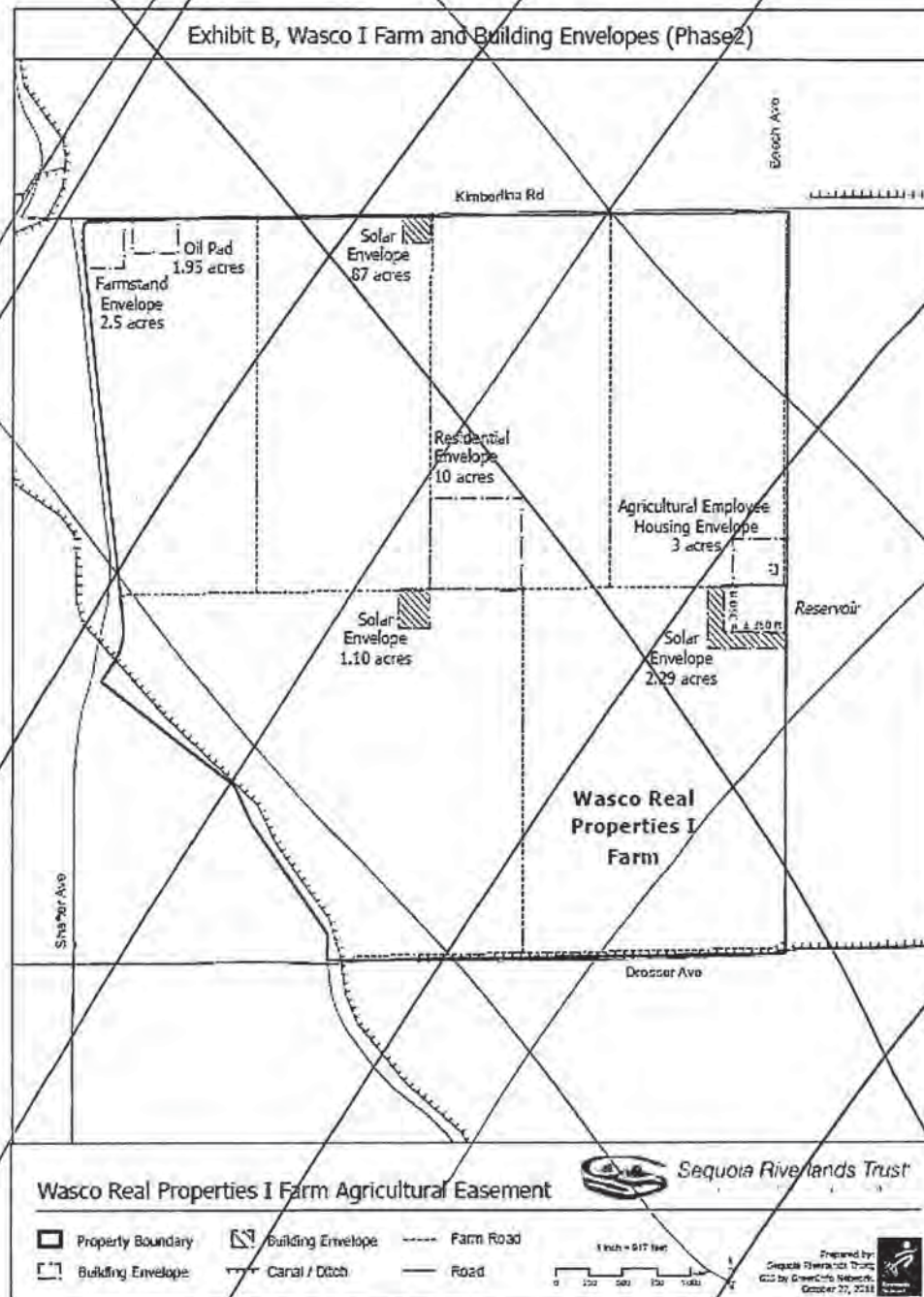
EXHIBIT B-2**Depiction of the Building Envelopes**

EXHIBIT C**Prior Encumbrances**

1. Any assessments levied or which may be levied by North Kern Water Storage District.
2. An easement for the purpose shown below and rights incidental thereto as set forth in a document in favor of Central Canal Company, a corporation for the purpose of main and lateral canals, recorded June 25, 1928, in Book 128, Page(s) 214 of Official Records, affects Parcel 5 and other property.

No representation is made as to the present ownership of said easement.

3. An easement for the purpose shown below and rights incidental thereto as set forth in a document in favor of the United States of America for the purpose of water pipeline, recorded September 25, 1956 in Book 2667, Page(s) 215, of Official Records, affects Reference is made to said document for full particulars.

No representation is made as to the present ownership of said easement.

4. An easement for the purpose shown below and rights incidental thereto as set forth in a document in favor of the County of Kern for the purpose of public highway, recorded April 29, 1958, in Book 2941, Page(s) 250 of Official Records, affects Reference is made to said document for full particulars.

No representation is made as to the present ownership of said easement.

5. Covenants and restrictions imposed by a Land Conservation Contract executed pursuant to Section 51200 et. seq. California Government Code, recorded February 26, 1969 in Book 4247, Page(s) 735 of Official Records.

Affects: The herein described land and other land.

6. Intentionally deleted.

7. An easement for the purpose shown below and rights incidental thereto as set forth in a document in favor of The Pacific Telephone and Telegraph Company, a corporation, its successors and/or assigns for the purpose of communication facilities, recorded September 28, 1977 in Book 5058, Page(s) 1260, of Official Records, affects Reference is made to said document for full particulars.

No representation is made as to the present ownership of said easement.

8. An Oil and Gas Lease for the term therein provided with certain covenants, conditions and provisions, together with easements, if any, as set forth therein dated June 1, 1982, Tenneco West Inc., a Delaware corporation, as lessor and Tenneco Oil Company, a Delaware corporation, as lessee, recorded July 19, 1982 in Book 5474, Page(s) 215 of Official Records.

No assurance is made as to the present ownership of the leasehold created by said lease, nor as to other matters affecting the rights or interests of the lessor or lessee in said lease.

Affects: Said Land

9. An agreement to which reference is made for full particulars by and between North Kern Water Storage District and Montecito Bank & Trust, Successor Trustee of the Howard Morf Family Trust dated May 31, 1972, recorded August 21, 1998 as Instrument No. 0198113490 of Official Records. Reference is made to said document for full particulars.

10. Intentionally deleted.

11. Deed of Trust to secure an indebtedness in the amount shown below, and any other obligations secured thereby:

Amount: \$14,557,500.00

Dated: April 24, 2007

Trustor: Wasco Real Properties I, LLC., a California Limited Liability Company;

and Wasco Real Properties I, LLC., a California Limited Liability Company

Trustee: Farm Credit West, PCA

Beneficiary: Farm Credit West, PCA

Recorded: April 27, 2007 as Instrument No. 0207090544 of Official Records

Loan No.: 8285446& 8285454

An additional advance in the amount of \$4,250,000.00 as disclosed by the instrument recorded January 12, 2009 as Instrument No. 0209004052 of Official Records.

The above instrument has been subordinated to Deed of Trust recorded August 18, 2009 as Document No. 0209120418 of Official Records by that certain agreement recorded August 18, 2009 as Document No. 0209120417 of Official Records.

The above document has been subordinated to this Agricultural Conservation Easement

12. An easement for pipeline easement and rights incidental thereto in favor of North Kern Water Storage District, a California water storage district as set forth in a document recorded April 15, 2009 as Instrument No. 0209053119, affects as described therein. Reference is made to the document for full particulars.

13. Intentionally deleted.

14. Deed of Trust to secure an indebtedness in the amount shown below, and any other obligations secured thereby:
Amount: \$1,136,334.00
Dated: January 25, 2011
Trustor: Wasco Real Properties I, LLC
Trustee: Farm Credit West, ACA
Beneficiary: Farm Credit Leasing Services Corporation
Recorded: April 18, 2011 as Instrument No. 0211050223 of Official Records.
Affects: Said land and other property

The above document has been subordinated to this Agricultural Conservation Easement

15. Intentionally deleted.

(End of Exceptions)

EXHIBIT D**Legal Description of the Adjacent Parcel**

The land referred to herein is situated in the State of California, County of Kern, Unincorporated Area, and described as follows,

All of Section 26, Township 27 south, Range 25 east, Mount Diablo Meridian, in the Unincorporated Area, County of Kern, State of California, according to the Official Plat thereof, lying westerly of the westerly line of the Friant-Kern Canal, as described in the Declaration to Taking recorded in Book 1710, Page 8 of Official Records.

Except all oil, gas and other minerals of whatsoever kind or character in or under or which may be produced from said land as excepted in Deed from Tenneco West, Inc., a Delaware corporation, recorded February 17, 1972 in Book 4634, Page 636 of Official Records.

Also except any remaining oil, gas and other minerals owned by Sun World, Inc., in and under the surface of said land, together with the full and free right to enter thereon and use so much of the surface thereof as may be reasonably necessary for operating, producing and marketing said oil and gas and other materials, upon the terms contained therein as reserved by Sun World, Inc. in the Deed to Western Fruit Acquisition, Inc., recorded January 30, 1986.

APN: 072-150-07

Exhibit DSREIR 10

September 28, 2015

Via Email and U.S. Mail

Kern County
Planning and Community Development
Department
Attn: Christopher Mynk, AICP
2700 M Street
Bakersfield, CA 93301
E-Mail: mynkc@co.kern.ca.us

Re: Comments on Draft Environmental Impact Report for Revisions to Kern County
Zoning Ordinance-2015(c) Focused On Oil and Gas Local Permitting

0059-64

Dear Mr. Mynk:

In their comment letter of September 11, 2015, Shute, Mihaly & Weinberger, LLP referenced a letter forthcoming from "Holly King to Kern County Planning and Community Development Department ("H. King Letter")". This is that letter. It is meant to point out the agricultural and oil land use conflicts and the extensive loss of farmland using real life examples from surface right property owners in Kern County and thereby illustrating the need to effectively address these impacts in the Draft Environmental Impact Report ("DEIR"). Some of the impacts are illustrated with visuals and are collected from members of the Committee to Protect Farmland and Clean Water ("Committee").

The Committee is made up of approximately 65 farming entities that farm over 225,000 acres. All have split estates. They respect that the mineral rights owner has a right to access their minerals, but they have experienced disrespect by the mineral rights owner/operator for land use issues that negatively impact agricultural operations and agricultural resources of the surface owner. All of the members of the Committee are willing to work toward a more positive relationship regarding the activities that occur on the surface, minimizing impacts to both the surface owners and mineral owners.

The DEIR only considered the acreage that has the potential to be physically replaced by oil and gas infrastructure, such as well pads, roads and processing tanks. In other words, only the impacts to the agricultural resources in the actual footprint of the infrastructure. However, the California Environmental Quality Act ("CEQA") requires that the impacts from the loss of all agricultural land is to be analyzed and the identified impacts mitigated, not just the impacts to the land in the footprint. The DEIR analysis does not account for situations like those listed below. These situations, illustrated by the attached photographs are all real world examples:

- The physical presence of well pads, power lines, above ground pipelines and roads can make it uneconomical to farm entire sections of farmland. See Exhibit 1, Farmer A - Larger Parcel Taken Out of Production, Exhibit 2, Farmer A – Larger Parcel Taken Out of Production (2) & Exhibit 3, Aerial Shot of Farmer A. Farmer A was told by the oil operator that they were going to put in 60 plus wells on 95 acres of their agricultural land - there was no discussion, just dictating “this is what we are going to do.” There was no attempt to use drill islands or directional drilling. Now 80 acres of the agricultural land can no longer be farmed. Note that there are well pads, gravel roads, pipelines above ground, power lines above ground. Simply accounting for the footprint of these facilities underestimates the impact – it is no longer economical to farm with all the fragmentation caused by the oil and gas facilities and operations. This is a loss of 80 acres of agricultural land that provides an example of a significant impact that should be analyzed under CEQA in the DEIR and mitigation measures provided.
- Farmer B has a parcel on which he was going to plant citrus and grapes. The oil operator began bulldozing on Farmer B’s property without any discussion or request for permission. When Farmer B asked what was going on, the operator gave him a cursory overview of the well activity. The operator failed to mention the infrastructure that was going to be put in. Without permission or consultation, the operator put in power lines, pipelines above ground, gravel roads and an iron gate with locks, locking the surface owner out of his own property! See Farmer B - Can Not Plant Citrus and Grapes, Farmer B – Locked Gate. As a result, the farming operations on this 70 acre piece have become impossible – a loss of agricultural land that should be mitigated.
- Farmer C sold his house and 40 acre farm to an oil company to avoid noxious drilling operations established near his house (setback less than 1,000 feet) that not only caused a significant reduction in the value of his property, but also rendered it unfarmable. Therefore, this “farm” and its 40 acres of agricultural land is not in production. This 40 acres would require mitigation.
- Farmer D has sold numerous parcels to oil operators because doing so was preferable to continuing to farm with the interference caused by oil and gas operations. While this solves a problem, the agricultural land taken out of production should be mitigated.
- All farmers require turnarounds for their equipment at the end of crop/tree rows. If fencing is installed around well pads, approximately 40 feet away from that fence will not be in production as it will have to be used for equipment turnaround. This type of situation that results in agricultural land taken out of production due to oil and gas operations should be mitigated for.
- Idle wells keep farmland out of production; farmland what could otherwise be put back into productive use and reverse the conversion and loss of farmland by oil and gas operations. See Exhibit 4, Farmer G – Idle Well Occupies Ag Land. The access road in this picture is only used for this Idle Well. The well is not in use and has not been for years. If this well were abandoned, the road and well pad could be replanted to trees, thereby reclaiming productive farmland.

- See Exhibit 5, Irrigation System Taken Out by Oil Operation. Without consulting the surface owner, the operator drilled an oil well that disabled the irrigation system and thereby caused 49 acres of agricultural land that provides an example of a significant impact that should be analyzed under CEQA in the DEIR and mitigation measures provided. This is also an unnecessary loss of 49 acres that must be prevented.

Reducing the Net Loss of Farmland:

- The permitting process needs to prevent the placement of wells in the middle of an orchard/field when there are alternatives that would not take agricultural land out of production, or would reduce the amount of land taken out of production. An oil company approached Farmer E and wanted to place a well in the middle of his orchard. Farmer E offered a location close by that was already out of production because it was part of his equipment yard. The operator declined. Further research by Farmer E indicated that the proposed well was outside an administrative boundary and asked for the CEQA documentation. The operator said they had done CEQA but could not produce the documentation – in other words, the oil well was not legal, including not in compliance with CEQA. The operator was “forced” to locate the well to the south of Farmer E’s property, along a main thoroughfare, limiting the disruption to agricultural land, and directionally drilled to the location originally requested. This shows that, as a part of the Proposed Project, guidelines need to be established and enforced related to the location of oil drilling to minimize the impacts to agricultural land.
- Once a well is drilled and either producing or capped, the excess ground in the surrounding pad footprint needs to be remediated and returned to the surface owner so it becomes productive agricultural land again. Farmer F asked the oil operator to return the excess land back to him after drilling had ceased and the well was producing. The oil company was unresponsive, so Farmer F “took” the ground back, incurred the expense of remediating the ground and planted trees. The oil operator should remediate the site and incur the cost to return the land to agricultural use, not the surface owner.

Other Adverse Impacts:

- Well pads, tanks and other equipment need to be clustered. When oil and gas infrastructure is not clustered, this not only increases the amount of farmland taken out of production, it also brings the parcel closer and closer to the tipping point of being uneconomical to farm and increases the risk of taking the entire parcel out of production. See Exhibit 3, Aerial Shot of Farmer A.
- Oil operators need to request permission for access from surface owners. Entering private property without notice results in the following:
 - The oil operators do not notify the surface owner when their employees enter the surface owner’s private property. Since restricted materials are sometimes used on agricultural lands – the concern here is for the safety of the employees of the oil company. Without notification or permission, it is not possible to provide for the protection of the oil operator employees.

- Without notice or permission, the oil operator installed power lines, underground pipelines and barriers in the middle of the farm road. See Exhibit 6, Farmer H – Installation of Power Lines Without Permission. Farmer H was not contacted regarding the installation of the power line, barriers in the middle of the farm road or the underground pipelines. As a result of the unapproved location of the power lines, the baby almond trees, once mature, will have to be hedged in order to be in compliance with the power lines. This will reduce the yields on the trees. These power lines could have been placed alongside the road to reduce the impact, but the surface owner was never consulted.
- The existing facilities in place for agricultural operations need to be protected from damage. Farmer I has an old sump on his property associated with past oil operations. The oil operator just pushed the existing dirt on the well pad up around the abandoned tank facility. Currently with remediation, all the operator is required to do is have DOGGR do a site inspection for remediation, which DOES NOT include a soil test. Consequently, the soil is contaminated and the oil operator is not required to clean it up, leaving Farmer I with the mess and the liability.
- New infrastructure and utilities for oil and gas production need to be reported. Pipelines and infrastructure are often buried and not reported to Underground Service Alert (USA), thereby leaving no record of where underground infrastructure is located and setting the public up to accidentally sever a line and create a cleanup situation. This leaves surface owners with the inability to know where the hazards may be when deep ripping or performing cultural practices on a piece of agricultural property.
- Oil operators need to comply with air quality rules associated with agricultural lands and agricultural operations. Oil operators need access roads and they are generally dirt roads. Oil operators do not follow the air quality rules that the surface owner is subject to. The surface owner is left with watering the roads or using other material to keep the dust down. Dust on trees interrupts the photosynthetic processes of plants and encourages the population of dust mites. Both require additional pest management and applications. So, not only is the surface owner saddled with the responsibility of dealing with the dust created by the oil operators and the associated cost, they are also subject to additional cost for pest control and reduced yields due to dust mites.
- Restrict the storage of oil and gas production materials and equipment on agricultural land. Severance deeds allow for the drilling, exploration and production of oil and gas. However, oil operators sometimes use the property to store their materials, aka junk. See Exhibit 7, Farmer J – Creation of Junk Yard by Oil Operator. This is not providing access to minerals – it is using private property for storage of another's personal property.
- Regarding grading and drainage plans be provided to surface owners for all improvements that require ground disturbance. Construction of an oil pad, unless done properly, disrupts the slope of the property. Farmer K experienced pollution of the soil in his orchard due to the leakage of produced water and pollutants from drilling operations off the drilling pad. When the oil operator graded for the pad, it was built 18" above with a 2% slope toward the orchard. Therefore, when there are "spills" on the pad, they flow directly in to the orchard. The operator placed a berm along the

orchard, which now collects the spilled material until it overruns the berm. In either case, the surface owner bears the brunt of contaminants on his trees.

- Surface owner needs to approve the depth of the well when capped consistent with the requirements of DOGGR. DOGGR provides for abandon wells to be capped in the range of 5 to 10 feet below the surface. The oil operator should be required to consult with the surface owner prior to remediation of the pad and the capping of the well to determine the appropriate depth at which to cap the well such that the farmland can be returned to production and provide a level of public safety as it will prevent the cap from being destroyed. Different types of crops require different depths for safe ripping activities. Abandon wells are not required to be reported to any dig service like USA, so their location is difficult to identify. Infrastructure to that well should be removed and the area around the pipelines and infrastructure should be tested for contamination and remediated during the removal process.

Idle wells on agricultural land have the potential to result in significant impacts related to air quality, hazards, and land use compatibility as well as significant economic impacts to the surface owner. DOGGR reports there are 12,000 +/- idle wells in Kern County. Due to the much higher cost to the oil operator to properly abandon a well than to pay an annual idle well fee, there is a perverse incentive to keep wells idle for long past their useful lifespan.

- The code defines an Idle Well as one that has not produced for 6 consecutive months in a 10-year period. Many of the idle wells we know of have not produced for 20 to 30 years, but are allowed to remain in idle status with claims they will be put back in to production. The cost of the annual idle well fee (none if you have a blanket bond) is minimal and does not incentivize abandonment of idle wells and return of the surface to the surface owner. It is cheaper to “store” the obsolete facility in perpetuity on the surface owner’s property. The issue for the surface owner is that idle wells take the surface out of production, and in most cases, the landowner is not compensated for the use of that surface land. Severance deeds allow for the drilling, exploration and production of minerals – idle wells do not do any of these things, except prevent agricultural use of the surface by the legal owner.
- Farmer L – has 4 idle wells on his property that have not produced for 22 years or more. These wells are examples of wells that will not produce again and are kept in inventory because it is cheaper to pay the testing fees than to abandon the wells. The wells are as follows:
 - Last produced in December of 1985 – no production for 30 years – See Exhibit 8, Farmer L – Idle Well for 30 Years.
 - Well #2 – No rig on it and has not produced for 38 years.
 - Well #3 – No rig on it and has not produced since 1987 – 28 years.
 - Well #4 – No rig on it and has not produced since 1993 – 22 years.
- Farmer M and Farmer N both have an oil operator on their property that has facilities that are clearly not operating – pressure gauge half full of water, no pumper on the well, outdated signs with the wrong contact information. The farmers noted that there was production being reported on these wells that were clearly not operating. Sure enough,

the operator was falsifying production records and was recently fined by DOGGR for violation of idle well requirements 81 times and not following idle well testing rules in eight incidences. If one were to think about this, this could be a business strategy in play. The purpose is likely to keep the wells on the active list so there is no integrity testing required that might indicate repair or abandonment. Those costs are likely to exceed the fines. The existing process incentivizes this type of activity.

- Farmer O provided the following discussion they had with DOGGR: “Spoke to DOGGR today...both Mike Tolan and John Gorash (spelling). It appears there is NO requirement to establish a long-term idle well elimination plan if operator files an indemnity bond or pays an annual fee (note: after 15 years, they can pay as little as \$500 a year, or \$5000 in an escrow acct.). John said an Operator must follow rules or DOGGR can initiate abandonment. However, my well has been out of operation for 29 years. Mike said it has been overdue since 2013 for a pressure test. Mike said they sent the operator another letter this year; No response. But Mike said there is no penalty for noncompliance. It is time for Kern to require compliance...and a pathway to abandonment.”
- A quote from Farmer P: “My property has graffiti and a fence down, and they are in bankruptcy. There is no sign on the property, which is a violation. Has not produced since 2009.” Farmer P has spoken to DOGGR and there seems to be no solution.

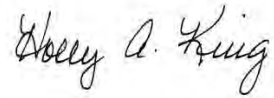
These are all real, life examples of the experiences of members of the Committee – they really happened. Further, they are only a sampling of what is going on around the County of Kern – one can probably multiply these examples by a significant amount.

In summary, there are effective means to work out the site-specific land use conflicts that lead to disruption of farming operations and the loss of agricultural land. Specifically these land use conflicts could be addressed to some extent by requiring the surface owner’s signature on the site plan *with a CUP process if a signature cannot be obtained*, or requiring a CUP permit for all wells drilled on split estates. Further, by capping the number of wells on split estates at the level of 30 per year – the estimate County staff gave based on the numbers in the DEIR. The surface owner should be allowed input in the development process since the issues as demonstrated above are land use conflict issues that result in significant impacts.

The Revised Amended Draft Chapter 19.98 (Oil and Gas Activities) does not go far enough to make a meaningful difference. Based on the past experiences of the Committee, I would expect many of the oil operators to ignore the farmer and the impacts on agricultural operations after they provide the given notice and do nothing to revise their preferred site plan. There is no meaningful input allowed by the surface owner to expect a different outcome. Further, the mitigation measures do not truly require operators to fully address the problems discussed above.

It is time for the County to use their police power related to land use issues to protect public health, safety and the welfare of its residents (*Berman v. Parker, Inc.*, 348 U.S. 26, 32-22.) (*Associated Home Builders, Inc. v. City of Livermore*, 18 Cal. 3d 582, 600-601.).

Sincerely,

A handwritten signature in cursive script that reads "Holly A. King". The signature is written in black ink and is positioned above the printed name.

Holly A. King
Committee to Protect Farmland and Clean Water

Attachments

0059-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is introductory and does not require a detailed response. The comment is noted and will be considered by County decisionmakers.

0059-2

The comment states that the SREIR's analysis of agricultural land conversions, noise impacts, and cumulative air emissions remains inadequate. The SREIR provides additional CEQA analyses to correct the deficiencies found by the Court of Appeal, including additional impact analyses in the areas of agricultural and forest resources (Section 4.2), air quality (Section 4.3), hydrology and water quality (Section 4.9), noise (Section 4.12), utilities and service systems (Section 4.17), and supplemental analyses with clarifications on mitigation measures (Section 4.18). See SREIR (October 2020), Vol. 1, at 1-9.

- For a detailed response regarding agricultural conversions, please refer to Responses to Comments 0059-4 through 0059-24, 0059-31 through 0059-47, and 0059-62 through 0059-64.
- For a detailed response regarding noise impacts, please refer to Responses to Comments 0059-25 through 0059-29, and 0059-48 through 0059-58.
- For a detailed response regarding cumulative air emissions, please refer to Responses to Comments 0059-30, and 0059-59 through 0059-61.

0059-3

The comment introduces proposed revisions to MM 4.2-1 (Exhibit DSREIR 4 of the comment), as well as additional technical reports regarding the agricultural effects, noise effects, and cumulative air emissions of the Project:

1. J. David Hughes, Comment on Draft Supplemental Recirculated Environmental Impact Report, Revisions to the Kern County Zoning Ordinance – 2020 A, December 2020 (Hughes Dec. Report).
2. Charles M. Salter Associates, Inc., Kern County Zoning Ordinance Revision, Acoustical Comments on Draft Supplemental Recirculated Environmental Impact Report, December 2020 (Salter Dec. Report).
3. Phyllis Fox, Comments on the October 2020 Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020 A, focused on Oil and Gas Local Permitting, December 2020 (Fox Dec. Report).

Each of these technical reports and Exhibit DSREIR 4 were reviewed. Written responses discuss these technical reports as follows:

- Exhibit DSREIR 4 is addressed in Response to Comment 0059-31.
- The Hughes Dec. Report is addressed in Responses to Comments 0059-32 through 0059-47.
- The Salter Dec. Report is addressed in Responses to Comments 0059-48 through 0059-58.
- The Fox Dec. Report is addressed in Responses to Comments 0059-59 through 0059-61, below.

The comment also requests that the County respond to previously submitted technical reports. The SREIR (October 2020) included additional analyses and text modifications to address technical reports submitted in comments on the SREIR (August 2020). See SREIR (October 2020), Vol. 1, at 1-8. Written responses were also provided as follows:

- For a detailed response to the Hughes Report submitted regarding the SREIR (August 2020), please refer to Responses to Comments 0008-31 through 0008-40.
- For a detailed response to the Salter Report submitted regarding the SREIR (August 2020), please refer to Responses to Comments 0008-41 through 0008-57.
- For a detailed response to the Fox Report submitted regarding the SREIR (August 2020), please refer to Responses to Comments 0008-58 through 8000-62.

0059-4

This comment describes the Court of Appeal's decision on mitigation for the impact of agricultural land conversion to non-agricultural use in the 2015 FEIR as background for other comments on the adequacy of agricultural impact mitigation in the SREIR (October 2020). The comment is introductory and does not require a detailed response.

0059-5

This comment references previous comments on the SREIR (August 2020) and describes revisions in the SREIR (October 2020) as an introduction to comments on the adequacy of agricultural impact mitigation in the SREIR (October 2020). The comment is introductory and does not require a detailed response. Please see Responses to Comments 0008-4 through 0008-15 for responses to previous comments on the SREIR (August 2020).

0059-6

This comment introduces other comments and does not require a detailed response. The comment correctly states that CEQA requires feasible mitigation that lessens a project's impacts, even if reduction to a level below significance is not feasible.

0059-7

This comment introduces other comments on mitigation for the impact of agricultural land conversion and does not require a detailed response.

0059-8

This comment introduces other comments on mitigation for the impact of agricultural land conversion and does not require a detailed response.

0059-9

The comment states that new MM 4.2-1.B, which provides for removal of an applicant's legacy equipment on the same legal parcel as mitigation for agricultural land conversion, is inadequate because it fails to include a 1:1 mitigation ratio requirement as a quantitative performance standard.

The comment is incorrect. CEQA does not require mitigation measures to include quantitative performance standards. Narrative performance standards are permissible. MM 4.2-1.B requires removal of all applicant-owned and controlled legacy equipment on the same legal parcel, which is a narrative performance standard. The comment states that the SREIR fails to explain why the 1:1 mitigation ratio included in the original mitigation measure can no longer be implemented. Please see SREIR (October 2020), Vol. 1, at 4.2-31–33, and Responses to Comments 0002-2 and 0008-9 through 0008-11, regarding new MM 4.2-1.B. Former MM 4.2-1(c) was removed based on the analysis in the SREIR (August 2020) that changing the former option for legacy equipment to a mandatory mitigation measure for all applicants would not be feasible. Not all surface owners' property includes legacy oil and gas equipment, and where such equipment exists, the applicant may not have the right to remove it. Where applicants do not own or control legacy equipment, or where none is present, they cannot feasibly be required to remove such equipment to achieve a 1:1 ratio. Where legacy equipment exists and the applicant does have the right to remove it, such removal would partially mitigate conversion of agricultural lands.

0059-10

The comment reiterates that MM 4.2-1 should require a 1:1 ratio for legacy equipment removal and states that the SREIR (October 2020) does not disclose the extent to which mitigation requiring legacy equipment removal might reduce the Project's impacts on farmland conversion.

Please see Response to Comment 0059-9 regarding the 1:1 ratio. It is not feasible to quantify the effectiveness of the legacy equipment removal requirement in new MM 4.2-1 because there is no information available on the acreage occupied by legacy equipment on Prime Farmland, Unique Farmland, and Farmland of Statewide Importance in Kern County that could be subject to removal. It is not possible to predict where future applicants for new well permits may own or control such equipment on the same parcel and be required to remove it. The impact of agricultural land conversion, with mitigation, remains significant and unavoidable. See SREIR (October 2020), Vol. 1, at 4.2-40.

0059-11

The comment introduces other comments claiming that there are "loopholes" in MM 4.2-1. This comment is introductory and does not require a response.

0059-12

The comment suggests that applicants will easily move new wells to neighboring parcels to avoid legacy equipment removal under MM 4.2-1. The comment states that MM 4.2-1 should be revised to: (1) require removal of applicant-owned legacy equipment located on the same parcel or farm as the new well (rather than on the same parcel only) at a 1:1 ratio to agricultural land converted; (2) require removal of applicant-owned legacy equipment from farmland elsewhere in the Project Area, if no applicant-owned equipment is present on the same parcel or farm; and (3) require the applicant to contribute to a County fund or mitigation bank for legacy equipment removal, if no applicant-owned legacy equipment is present on the same farm or farmland elsewhere in the Project Area.

Please see Response to Comment 0059-9 regarding the 1:1 ratio. Physical and technological limitations constrain applicants from easily moving wells and still reaching the desired targets. See page 1-2 of the January 13, 2021, technical memorandum by A. Velasco, attached to this response set (Velasco 2021). It is not feasible or practical to require applicants, as a condition of approval for site-specific oil and gas activities, to undertake separate equipment removal projects at other locations. A mineral owner's appurtenant rights to access minerals through the overlying surface do not extend to work on other parcels, even on the same farm. Distances between locations within the same farm in Kern County can be substantial. According to U.S. Department of Agriculture data, over one quarter of farms in Kern County are larger than 499 acres, with 9 percent between 500 and 999 acres and 18 percent greater than 1,000 acres (USDA 2017). Sites on separate farms in the County would predominantly be owned by other landowners who may not authorize access to their property. Imposing a requirement to remove legacy equipment from unrelated property that lacks a nexus to the proposed oil and gas activities risks exposing the County to takings claims if owners of mineral interests underlying agricultural lands are unable to feasibly exercise their mineral rights.

Creation of a County fund or mitigation bank that would collect fees from applicants and pay for legacy equipment removal from agricultural land is outside the scope of this SREIR. It would also require a separate project with its own CEQA review. No such legacy equipment mitigation bank currently exists. Comment segment 0059-47 states that, in order to develop such a mechanism, the County would have to first inventory the number of legacy wells in the County for which there are insufficient funds in bonds and that solvent operators have no obligation to address. Then the County would need to estimate the cost for removing such equipment and establish an appropriate standard fee to charge. None of this information is currently available. Numerous issues would have to be addressed in a project to create such a mitigation bank, including:

- Establishing an administrative mechanism for fee collections, management, and disbursement (and setting fees to cover administration);
- Determining whether fees would be used for grants to landowners for equipment removal from their own land and/or to fund removal work carried out by County-retained or independent contractors;
- Setting standards for grant evaluation if landowners apply for grants;
- Acquiring title to the equipment or authorization to remove it;
- Establishing a monitoring mechanism to ensure that fees are collected, funds paid out, and the work carried out; and
- Evaluating potential environmental impacts from equipment removal projects funded by the fees.

If at some future time the County establishes a legacy equipment mitigation bank, the Ordinance could be amended to add a mitigation measure requiring contributions to the bank as mitigation for agricultural land conversion impacts.

0059-13

The comment states that an applicant could avoid removing legacy equipment under MM 4.2-1 by transferring title to another entity, and references proposed language to address this concern in Comment segment 0059-31. The comment's proposed language provides that an applicant shall be deemed to own legacy equipment that is owned by (a) the applicant or an entity controlled by or affiliated with the applicant on the date the application is filed, or (b) an entity not controlled by or affiliated with the applicant to which the applicant transferred title to the legacy equipment within one year prior to the date that application is filed. The proposed language also provides that an applicant shall be deemed to be an "affiliate" of any entity that controls or is controlled by the applicant or an entity that has hired the applicant as an independent contractor.

As discussed in the SREIR (October 2020), new MM 4.2-1 applies to legacy equipment owned or controlled by the applicant. See SREIR (October 2020), Vol. 1, at 4.2-31–33. An applicant would be considered to control equipment currently owned by an entity affiliated with the applicant as described in the language proposed by the comment. The County lacks legal authority, and there is no legal connection (nexus) requiring applicants to remove legacy equipment that they do not own or

control, including equipment transferred to an independent entity during the previous year. See SREIR (October 2020), Vol. 1, at 4.2-33.

In response to this comment, and for clarification, MM 4.2-1.B is revised as follows:

No permit for a new well shall be issued if the applicant ~~has~~ owns or controls legacy unused oil and gas equipment on the same legal parcel. An applicant shall be deemed to own or control legacy equipment if, as of the date the application is filed, it is owned by (i) the applicant, (ii) an entity that controls or is controlled by the applicant, or (iii) an entity that has hired the applicant as an independent contractor. The legacy oil and gas equipment shall be removed inclusive of compliance with applicable legal requirements . . .

0059-14

The comment acknowledges that new MM 4.2-1 in the SREIR (October 2020) sets acreage limitations per well on defined agricultural land and states that the comment does not object to the limitations. The comment also introduces other comments regarding clustering.

Please see Responses to Comments 0059-21 through 0059-24 and 0059-32 through 0059-43 regarding clustering and related issues.

0059-15

The comment refers to previous comments asserting that the SREIR should require agricultural conservation easements as mitigation for agricultural land conversion.

MM 4.2-1, which provided for conservation easements as an option for mitigating agricultural land conversion, was removed because the Court of Appeal concluded that conservation easements do not provide an effective means of even partial mitigation for such impacts. See SREIR (October 2020), Vol. 1, at 4.2-29–30, and Responses to Comments 0008-5 through 0008-8.

0059-16

The comment notes the economic value of agriculture for Kern County and states that mitigation by agricultural conservation easements is feasible.

Please see SREIR (October 2020), Vol. 1, at 4.2-29–30, and Responses to Comments 0008-5 through 0008-8 regarding conservation easements.

0059-17

The comment states that the California Legislature has identified conservation easements as a vital tool in combating land development pressures on farmland and cites an unpublished case similarly, stating that conservation easements can diminish development pressures.

MM 4.2-1, which provided for conservation easements as an option for mitigating agricultural land conversion, was removed because the Court of Appeal concluded that conservation easements do not provide an effective means of even partial mitigation for such impacts. See SREIR (October 2020), Vol. 1, at 4.2-29–30, and Responses to Comments 0008-5 through 0008-8. An unpublished court decision is not precedential, and the Court of Appeal's decision on the 2015 FEIR is binding for purposes of the SREIR.

0059-18

The comment states that agricultural conservation easements have been widely used in Kern County and many are held by Sequoia Riverlands Trust. The comment states that even if conservation easements cannot fully mitigate farmland conversion impacts, they can lessen the impacts.

The Court of Appeal concluded that conservation easements do not provide an effective means of even partial mitigation for such impacts. See SREIR (October 2020), Vol. 1, at 4.2-29–30, and Responses to Comments 0008-5 through 0008-8.

0059-19

The comment states that an agricultural conservation easement mitigation measure would have the benefit of “shoring up” the legacy equipment removal mitigation measure, which does not reduce agricultural conversion impacts to a less than significant level.

The comment is correct that CEQA requires feasible mitigation that lessens a project’s impacts, even if reduction to a level below significance is not feasible. However, the Court of Appeal concluded that conservation easements do not provide an effective means of even partial mitigation for agricultural conversion impacts. See SREIR (October 2020), Vol. 1, at 4.2-29–30, and Responses to Comments 0008-5 through 0008-8. Regarding the legacy equipment removal mitigation measure, see Responses to Comments 0059-9 through 0059-13.

0059-20

The comment summarizes previous comments on agricultural conservation easements as mitigation for agricultural land conversion.

See SREIR (October 2020), Vol. 1, at 4.2-29–30, Responses to Comments 0008-5 through 0008-8, and Responses to Comments 0059-15 through 0059-19.

0059-21

The comment quotes the Court of Appeal’s finding that “the EIR should have addressed other proposed mitigation measures, including the clustering of wells when feasible” and describes comments on clustering mitigation in the 2015 FEIR. This comment is introductory and does not require a response.

0059-22

The comment quotes the SREIR’s conclusion that: “Mitigation that would require wells to be clustered or grouped on agricultural lands in all instances, regardless of the preference of individual surface and mineral owners, is not reasonable or feasible” and states that this conclusion not supported by substantial evidence. See SREIR (October 2020), Vol. 1, at 4.2-33–34.

Substantial evidence supporting this conclusion is provided in the SREIR (October 2020), Vol. 1, at 4.2-33–40 and in Responses to Comments 0008-12 through 0008-15 and 0008-32 through 0008-40. The comment states that clustering mitigation is feasible because directional drilling is widespread in Kern County and refers to the September 2020 memorandum prepared by J. David Hughes that was submitted with comments on the SREIR (August 2020). Please see Responses to Comments 0008-32 through 0008-40 responding to Mr. Hughes’ September 2020 memorandum, which did not distinguish between directional drilling and horizontal drilling. Formations in California, including Kern County, are largely dominated by faults and traps that do not allow clustering wells because the producible reservoirs are pinched out and discontinuous laterally. Genuine horizontal drilling remains relatively rare in Kern County, consistent with the widespread complex geological structures that are typically unfavorable. Drilling equipment is not capable of making near-right angle turns from the vertical initiation of the bore to a horizontal or near-horizontal orientation. Even where the geology is amenable to drilling laterally, a well must be deep enough to accommodate a gradual horizontal turn.

0059-23

The comment summarizes comments contained in the Hughes Dec. Report.

Please see Responses to Comments 0059-32 through 0059-47 regarding the Hughes Dec. Report. The comment criticizes the conclusion in the SREIR that “individual farmers may prefer that wells be distributed in multiple locations on the property rather than clustered on a larger pad in a single location,” referring to a prior comment letter on the 2015 FEIR (attached as Exhibit 10 to this comment letter) that suggested clustering wells as mitigation for conversion of agricultural land. See SREIR (October 2020), Vol. 1, at 4.2-34. The comment asserts that CEQA requires mitigation of impacts on farmland “even over potential objections of landowners.”

It is reasonable to expect that farmers may prefer that wells on the property be distributed in a manner that facilitates farming. See, for example, Comment 0006-16, which suggests that “the farmer may select a corner or edge of their field where irrigation and farming operations will be least interrupted in the judgment of the farmer and within 1500 feet of the oil field operator’s desired location.” There may be less productive areas for farming distributed in several locations throughout a given parcel, due to variations in soil quality, water supply, slope, drainage, access for farm equipment, past uses of the property, and other factors. Individual farmers are best able to identify the most agriculturally productive

configuration of uses on split estate lands. See SREIR (October 2020), Vol. 1, at 4.2-34–35. The comment itself states that the “permitting process needs to prevent the placement of wells in the middle of an orchard/field when there are alternatives that would not take agricultural land out of production, or would reduce the amount of land taken out of production” and refers to an example in which an “oil company approached Farmer E and wanted to place a well in the middle of his orchard. Farmer E offered a location close by that was already out of production because it was part of his equipment yard.” See Comment 0059-64, Exhibit 10, at p. 3.

The Exhibit 10 letter describes incidents of conflict between mineral and surface owners that occurred prior to adoption of the 2015 Oil and Gas Ordinance. While recognizing the dominant access rights of mineral owners under state law, the Ordinance provided for a two-track application review process that significantly enhances the negotiating position of a split estate surface owner relative to the mineral estate owner. The process gives the surface and mineral owner the opportunity and incentive to reach agreement on, among other issues, the location of surface disturbance so as to lessen the impact on the agricultural use of the individual property on parcels where the underlying geology is amenable to accessing mineral resources by horizontal drilling. Requiring clustering in all cases would deprive surface owners of the flexibility to negotiate their preferred use of the surface with mineral owners, which would be inconsistent with the purpose of the two-track application review process to facilitate agreement between surface and mineral owners. See SREIR (October 2020), Vol. 1, at 4.2-35.

CEQA does not require mitigation that is infeasible, taking into account economic, environmental, legal, social, and technological factors. CEQA Guidelines §15364. In determining feasibility, landowners’ economic, environmental, legal, social, and technological concerns are entitled to consideration. The comment’s assertion that clustering wells must be required “even over potential objections of landowners” is inconsistent with the comment’s advocacy of an alternative that would have given greater authority to landowners’ objections to placement of oil and gas facilities, by requiring applicants to obtain the surface owner’s approval of the applicant’s site plan or, if surface owner approval cannot be obtained, a Conditional Use Permit. See Comment 0059-64, Exhibit 10, at p. 6.

0059-24

The comment summarizes comments contained in the Hughes Dec. Report and attached as Exhibit 5 to the comments.

Please see Responses to Comments 0059-32 through 0059-47 regarding the Hughes Dec. Report.

0059-25

This comment introduces other comments on the adequacy of the SREIR (October 2020) noise analysis. The comment is introductory and does not require a detailed response.

0059-26

The comment summarizes one of the conclusions of the Salter Dec. Report. The comment states that there is an error in the computation of the mitigation triggering distances in that these are calculated using an equivalent continuous sound pressure level (L_{eq}) metric rather than a day-night average level (DNL) metric.

The DNL represents the time-weighted energy average noise level for a 24-hour day, with a 10-decibel (dB) penalty added to noise occurring during nighttime hours. The L_{eq} metric is the average noise level, on an equal-energy basis for a stated period of time, and is commonly used to measure steady-state sound or noise that is usually dominant. In light of the highly conservative assumptions of the SREIR (October 2020), the comment’s statement that the mitigation screening distances can allow up to a 10 dB increase over DNL is inaccurate. As the County’s consultant concluded t:

The L_{eq} metric is appropriate for the screening distances in light of the very conservative measurement and modeling methodologies used by the consultants in the 2015 FEIR. The L_{eq} is the equivalent sound pressure level and is commonly used to measure steady-state sound or noise and as such represents the sound as actually experienced by the sensitive receptor. SREIR (October 2020), Vol. 2, Appendix E, at 6.

The mitigation triggering distances using the 49 dB contour range up to 1.5 miles (for large-scale exploratory drilling) and nearly 0.75 miles (for drilling). In light of the conservative assumptions used in modeling the propagation of Project-related noise and the use of the lowest measured ambient level, the use of the L_{eq} metric will not lead to the 10 dB exceedance predicted by this comment. If a sensitive receptor is located within the mitigation triggering distance, the applicant is then required to reduce the activity noise to achieve the applicable DNL standard. For a more detailed response regarding the conclusion of the Salter Dec. Report, please see Responses to Comments 0059-50 through 0059-53.

0059-27

The comment summarizes one of the conclusions in the Salter Dec. Report and states that the noise mitigation measures should be revised to require achievement of the Noise Standard using the DNL metric.

The mitigation measures require achievement of the Noise Standard using the DNL metric. Please see Response to Comment 0059-55.

0059-28

The comment summarizes one of the conclusions of the Salter Dec. Report and states that the SREIR (October 2020) should require the measurement of noise levels at the location of sensitive receptors and should establish basic measurement protocols for accuracy.

The mitigation measures require the measurement of noise levels at the property line of a sensitive receptor. See SREIR (October 2020), Vol. 1, at 4.12-52, 4.12-55. This is more conservative than measuring at the wall of the dwelling, school, or other sensitive receptor, which may be set back from the property line. The mitigation measures require the Acoustic Noise Reduction Report to be prepared by a qualified professional and specify the locations, types, and duration of measurements. For a detailed response to the protocol suggestions in the Salter Dec. Report, please see Response to Comment 0059-56.

0059-29

The comment summarizes one of the conclusions of the Salter Dec. Report and states that the periodic monitoring of operational noise should be required.

The SREIR (October 2020) requires periodic monitoring of construction activities because these are the loudest sources of noise and, as described in the SREIR, may vary over time. See SREIR (October 2020), Vol. 1, at 4.12-27, 4.12-28. By contrast, operational noise is both relatively quiet and consistent. The factors making periodic monitoring appropriate for construction are not present for operational noise. For a discussion regarding compliance and enforcement, please see Response to Comment 0008-22. For a detailed response to the conclusion of the Salter Dec. Report, please see Response to Comment 0059-57.

0059-30

The comment states that the SREIR (October 2020) fails to revise the multi-well Health Risk Assessment (HRA) or correct its assumptions about well density.

For responses to the Fox Report submitted with comments on the SREIR (August 2020), please see Responses to Comments 0008-58 through 0008-62. Please see Responses to Comments 0059-59 through 0059-61 for responses to the Fox Dec. Report submitted with comments on the October 2020 SREIR. As to well density, please see Response to Comment 0008-27.

The comment states that the multi-well HRA should consider an increase in oil and gas drilling activities as a result of the Project, rendering its current assumptions about drilling patterns and equipment availability inaccurate. The comment is speculation with no support. Drilling activity primarily follows the price per barrel of oil, not this or any other particular project's approval. Since the 2015 FEIR, prices have ranged from approximately \$41 in December of 2015 to a high of approximately \$75 in September of 2018 (including going negative in April 2020, which is likely an anomaly). The price rests at \$47 as of December 16, 2020. Current forecasts do not predict that oil prices will rebound significantly until 2022. Since price drives activity, rig activity in Kern County also varies over time. In fall 2018 (a high point for oil prices), there were 12 rigs active in Kern County, while in September 2020 (a low point for oil prices) there were only four rigs active in the County. The Baker Hughes, "North American Rotary Rig County Pivot Table (February 2011 to current)" cited in Appendix B-1 of the SREIR (October 2020) shows the history of drill rigs in Kern County. The Baker Hughes data do not support the comment's speculation that oil and gas drilling will increase due to Project approval. Table 3-1 in the SREIR (October 2020) also shows total approved and issued permits since the Project was approved in 2015. It does not show a significant increase in oil and gas activities over time nor an exponential increase occurring over time. See SREIR (October 2020), Vol. 1, at 3-2. Table 3-1 shows that a total of 1,194 permits were issued in 2016, 2,395 permits in 2017, 2,109 permits in 2018, and 1,134 permits in 2020. Table 3-4 in the SREIR also shows Kern County oil and gas production statistics, including well count, for the years 2002 to 2013. This table shows a range of approximately 600 to 1,600 new wells in various years. See SREIR (October 2020), Vol. 1, at 3-21.

The multi-well HRA assumes a very conservative scenario of drilling 48 wells, all assumed to be 13,000 feet deep even though less than 3 percent of wells in Kern County are more than 10,000 feet, in concentric circles around a sensitive receptor proximate in time to each other. Please see Response to Comment 0008-27 and 0008-62. The multi-well HRA also includes conservative assumptions. These assumptions include: (1) that all particulate matter less than 10 microns (PM₁₀) would be diesel particulate matter (DPM), (2) that every well would be reworked every other year, (3) the inclusion of a mud sump and associated emissions, and (4) the fact that all seven phases of construction were assumed to occur simultaneously. Please see also Response to Comment 0008-27 and 0014-7.

The comment also states that the multi-well HRA incorrectly relies on short-term health risks from drilling rather than long-term health risks associated with operation and maintenance of wells and production facilities. All three HRAs included significant production equipment as part of a conservative assessment, including thermally enhanced oil recovery, production, and processing equipment and storage tanks. See Response to Comment 0014-2 and GR-6. The highest calculated acute risk associated with all operations at a theoretical oil and gas production facility based on the September 2015 single-well HRA under SJVAPCD directive was 0.23, as compared to the regulatory significance standard of 1.0. As shown by the single-well HRA analyses, even with the inclusion of extensive production equipment, including engines, a cogeneration facility, several tanks, a flare, and additional equipment, both the acute and chronic (non-cancer) impacts in the “single well with production equipment” scenarios are well below the regulatory threshold of 1. See SREIR (October 2020), Vol. 1, at 4.3-154; see also SREIR (October 2020), Vol. 2, Appendix B-1, at 5. The multi-well HRA assessed well drilling and completion and well rework, but no oil or gas processing plant was assumed to be located at the well sites. This is because there would not be room for a processing plant to be co-located with the wells in the multi-well HRA scenario due to the number of wells (48) that would be located in such a small area. It was assumed that in this scenario oil would be moved to a processing plant or plants via underground pipeline. Any oil or gas processing facility would also require an HRA to be completed for each piece of equipment emitting any hazardous air pollutants, as well as additional stationary source permit approvals. See Response to Comment 0014-7.

As to a proposed mitigation measure to limit well density in the County, please see Responses to Comments 0008-27 and 0008-59. The SREIR is not required to limit well density to a certain density via a mitigation measure as requested by the comment. This would not be effective at reducing health risk because the relevant inquiry is not well density across the County but rather wells being drilled in close spatial and temporal proximity to each other and also closely located to a single sensitive receptor. A mitigation measure limiting well density across the board would not address the health risk assessed in the multi-well HRA or resulting from the Project. Instead, MM 4.3-5 creates mitigation tailored to address Project impacts and actual health risk from Project activities based on the HRAs prepared for the Project, and the setbacks in MM 4.3-5 will ensure that health risk to sensitive receptors is below the San Joaquin Valley Air Pollution Control Board (SJVAPCD) threshold of 20 in one million. See SREIR (October 2020), Vol. 1, at 4.3-143–159. No further mitigation is required.

The multi-well HRA did not consider chronic or acute impacts nor multi-pathway exposure because approximately 99.9 percent of the risk associated with the multi-well HRA scenario comes from DPM, and thus inhalation is the dominate pathway for exposure. See SREIR (October 2020), Vol. 1, at 4.3-154.

0059-31

This comment is an exhibit containing proposed language that would amend MM 4.2-1 to incorporate proposed changes in Comments 0059-9 through 0059-13.

Please see Responses to Comments 0059-9 through 0059-13. The proposed language in this comment also includes a proposed requirement for soil remediation and restoration of agricultural land from which legacy equipment is removed, although the comment does not contain further explanation or discussion of this language. MM 4.2-1.B provides that legacy equipment removal shall be “inclusive of compliance with applicable legal requirements (e.g., well plugging and abandonment requirements under state or federal regulations), and restoration of the surface grade consistent with surrounding lands.” Appropriate soil treatment will be determined by applicable regulatory requirements based on site conditions. Since legacy equipment may be removed from only a portion of the parcel, soil remediation may not be practical or effective. In addition, the applicant who currently owns or controls legacy equipment may not be responsible for historic soil contamination, especially where the applicant is not the landowner of agricultural land.

0059-32

The comment describes qualifications. This comment is introductory and does not require a response.

0059-33

The comment introduces other comments and references earlier comments. This comment is introductory and does not require a response.

0059-34

The comment describes the presence of legacy oil and gas equipment and Project impacts on agricultural land conversion as discussed in the SREIR. This comment is introductory and does not require a response.

0059-35

The comment introduces other comments on MM 4.2-1. This comment is introductory and does not require a response.

Please see Responses to Comments 0059-37 through 0059-47.

0059-36

The comment states that the comment does not object to the acreage limitations per well on defined agricultural land MM 4.2-1, but that the mitigation measure fails to provide for clustering multiple wells on a single pad. This comment is introductory and does not require a response.

Please see Responses to Comments 0059-37 through 0059-43 regarding well clustering and directional and horizontal drilling.

0059-37

The comment states that it is unlikely that farmers would not prefer clustering on a single-well pad and that, in any event, CEQA requires mitigation “even over potential objections of landowners.”

Please see Response to Comment 0059-23.

0059-38

The comment asserts that well clustering is feasible because subsurface leases tend to be much larger on average than surface parcels and it would rarely be the case that one legal lot of agricultural land could have multiple distinct ownership subsurface leases.

This statement is not correct. See the technical memorandum by M. Mills, attached to this response set (Mills 2021). Mr. Mills is an attorney with considerable experience in oil and gas land and title matters. He and his team have prepared over 128 drilling title, division order, and acquisition title opinions for mineral title issues in Kern County since 2009 and have represented several upstream oil and gas companies in connection with leasing, title trespass, and related subsurface development issues. Mills (2021) cites the data presented in the Hughes Dec. Report, which show leases that are currently assessed but fail to include all leases in the depicted area. Not all recorded oil and gas leases are assessed. Enclosure A of Mills (2021) contains information on all recorded, not only assessed, oil and gas leases in the area east of the city of Shafter, which is an area shown in Figure 1 in the Hughes Dec. Report. As Enclosure A demonstrates, numerous leases exist and are of public record on single surface tracts in this area of Kern County. Not all of these leases have the same terms. Lease language will, in many cases, make the well-clustering mitigation measure infeasible (Mills 2021). In order to have multiple-well pads for wells producing from various leases, the various mineral owners must consent to the arrangement, or the individual leases themselves must contain the necessary language that would allow for this to occur. Such variations in lease language include drilling obligations (spatial drilling locations to fully drill a lease), surface access waivers (the inability to drill a well from a surface location on the lease), different terms of duration (and different dates of expiration), and limitations on the depths that are subject to the lease itself. For these reasons, the fact that the lessee under multiple leases is the same does not, by itself, make drilling from a multiple-well pad any easier or more practicable.

Pass-through rights for lateral wellbores, as well as pooling rights, are necessary if a well is to produce from multiple leases from a single location. These rights are not automatically afforded or given to an operator. Pass-through rights must be negotiated with, and obtained from, the surface owner, who is under no obligation to grant such rights. Pooling rights must be negotiated with, and obtained from, the mineral owners or lessors of the minerals. The County has no legal authority to require pooling (legally known as “forced pooling”), or to force an unwilling surface owner to grant an oil and gas operator pass-through rights.

0059-39

The comment states that directional drilling at an inclination of 20 degrees or more from vertical is technologically feasible and enables sufficient “lateral offset” to make clustered well pads viable (that is, to reach resources that are laterally dispersed rather than vertically beneath the well pad). The comment states that more lateral offset can be achieved with a deeper directional well at a given angle from vertical. However, the comment states that, although many directional wells in Kern County are in the 2,000-foot depth range, a substantial proportion of well are deeper, and some are greater than 16,000 feet deep. See Figure 2 in this comment. Even for 2,000-foot wells, the comment states that sufficient lateral offset can be achieved to make clustered well pads viable. See Table 1 in this comment.

According to Figure 2 of this comment, it appears that approximately 90 percent of directional wells in Kern County are less than 5,000 feet deep, while wells less than 2,000 feet deep predominate. However, according to Table 1 of the comment, at a 20-degree angle of inclination, a well would have to be between 5,000 and 6,000 feet deep to achieve a 2,000-foot lateral offset, while a 2,000-foot well could achieve an offset of 684 feet. The theoretical offset distances in Table 1 do not accurately reflect real-world drilling design and so underestimate the drilling depths needed to reach a given lateral target, as explained in Velasco (2021), pp. 1–2. The lateral offset calculations in Table 1 incorrectly assume that wells will be drilled starting at an angle of 10 degrees, 20 degrees, 30 degrees, etc. However, this is not how directional drilling occurs. This does not account for the gradual curvature of the well bore (referred to as the “build rate”) that is necessary to achieve a given inclination from vertical, based on physical and equipment limitations. The total length of the well bore or measured depth, including its gradual curvature, will therefore be greater than the depth of a linear bore at a fixed angle. Table 1 also does not consider the initial vertical footage that must be drilled before beginning to deviate the curving bore from vertical.

Table 1 also does not account for constraints on lateral offsets due to the fact that, for enhanced oil recovery projects, wells (both injectors and producers) must be specifically and uniformly spaced, to enable even reservoir heating and efficient flow of hydrocarbons to the well bore. Many wells drilled in Kern County access a series of reservoir targets at specific depths, referred to as a “vertically stacked pay.” The drilling plan is designed to efficiently intercept the vertical array of pay zones by hitting each target in turn at specific angles and orientations. These constraints are particularly important in shallow wells, which are predominant in Kern County, as shown in Figure 2 of this comment. With such shallow wells, there is less footage and therefore less flexibility to achieve the desired angle and orientation to hit each of targets in the vertically stacked pay zones. The simple linear drilling distances suggested in Table 1 understate actual drilling distances because they fail to take into account the complex pathways of real-world drill bores. In shallow wells, which predominate in the County, there often will not be sufficient room to configure such complicated pathways and reach the target resources, as illustrated in the example in Velasco (2021) pp. 1–2. See also the October 20, 2020, technical memorandum by A. Velasco provided in response to the SREIR (August 2020) (Velasco 2020). See SREIR (October 2020), Vol. 2, Appendix G.

Figure 2 of the comment illustrates that, though the majority of directional wells in Kern County are less than 2,000 feet deep, a substantial proportion of wells are deeper. Where deeper wells are drilled, they provide greater flexibility for designing drilling to reach desired targets. The geology must be amenable to drilling laterally, in addition to the wells being deep enough to accommodate gradual horizontal turns. However, the complex geological structures typical in Kern County are unfavorable for long distance horizontal drilling such as occurs in other parts of the United States, outside of California. Moreover, even where sufficient lateral offset to reach resources from clustered well pads is geologically and technologically feasible, a mitigation measure requiring well clustering raises other issues. See SREIR (October 2020), Vol. 1, at 4.2-33–40 and Responses to Comments 0059-38 and 0059-40 through 0059-43.

0059-40

The comment states that drilling a horizontal well may take two weeks at most and constitutes a small proportion of lifetime well emissions. The comment states that there is no evidence to support the SREIR’s claim that clearing extra acres of land to build multiple single-well pads would produce fewer emissions than drilling directional or horizontal wells from a much smaller multi-well pad.

The SREIR acknowledges that a proposed mitigation measure that requires clustering can be expected to reduce the footprint of consolidated multi-well pads using common access roads and infrastructure, compared to the sum of the footprints of dispersed well pads with separate access roads and infrastructure. See SREIR (October 2020), Vol. 1, 4.3-36–37. These incremental benefits from clustering mitigation may be reduced by other existing mitigation measures and incentives. Most future oil and gas production in Kern County is expected to occur in established oil fields that are many decades old, are already highly disturbed, and have well-developed infrastructure and access roads already in place. For efficiency, operators utilize existing access roads when available to connect to new pads, thus reducing surface disturbance.

MM 4.1-4 requires applicants to use existing public access easements or County-maintained roads to access oil production areas, allowing new roads only if there is no existing public access easement or permission cannot be obtained to use an existing private access easement or private driveway/road. MM 4.2-2(h) requires that overhead electrical or communication lines must be aligned with existing roads, existing lines and easements, or existing private driveways, and/or be parallel to tree or row crops. MM 4.2-1.A, which was added in the SREIR (October 2020), Vol. 1, at 4.2-31, caps the amount of land disturbance for new wells at 2.0 acres in the Western Subarea, 3.0 acres in the Central Subarea, and 1.2 acres in the Eastern Subarea.

It would be speculative to attempt to quantify the magnitude of potential emissions from non-impacted land clearing and construction of multiple-well pads and associated infrastructure, that could result from a clustering mitigation measure. Geological and technological constraints prevalent in Kern County limit opportunities for well clustering. See SREIR (October 2020), Vol. 1, at 4.2-36–37; see also Response to Comment 0059-39 and Velasco (2021). It is not possible to predict the number and acreage of future applications for new wells located on Prime Farmland, Farmland of Statewide Importance, and Unique Farmland where clustering would be geologically and technologically feasible, or the configurations of well pads and infrastructure that those applications would include under both clustered and non-clustered scenarios, in order to directly compare the scenarios.

Nevertheless, it is generally reasonable to expect that a proposed mitigation measure that requires clustering will reduce the footprint of consolidated multi-well pads using common access roads and infrastructure, compared to the sum of the footprints of dispersed well pads with separate access roads and infrastructure. See SREIR (October 2020), Vol. 1, at 4.2-36 and Responses to Comments 0008-13, 0008-35, and 0061-85. A mitigation measure mandating the clustering of wells is reasonably expected to require horizontal drilling, which would require longer drilling periods to reach the mineral source than would be needed by a vertical well. There would be some reduction of emissions associated with constructing fewer access roads. However, most future oil and gas production in Kern County is expected to occur in established oil fields with access roads already in place, so the primary effect on emissions will be from incremental horizontal drilling. Horizontal drilling requires a longer drilling path and duration to reach the target reservoir than does vertical well drilling. Because current drilling equipment in California is not capable of making near-right turns from vertical initiation of the bore to a horizontal orientation, horizontal wells must be drilled in a more sweeping, arch shape, and thus wells must be deep enough to accommodate this gradual horizontal turn instead. This means that the total distance that must be drilled when drilling horizontally is larger than when drilling vertically and thus the drilling takes longer to accomplish. Longer drilling periods mean increased levels of construction-related emissions, while emissions from later phases of a well's productive life would be unchanged. The proportion of lifetime emissions attributed to post-drilling activities is not relevant to the difference between emissions from vertical and horizontal drilling.

Horizontal drilling not only requires longer drilling times, which increase emissions, but also tends to require greater power. Operation of the larger, higher horsepower engines required for horizontal drilling results in higher emissions than vertical drilling for an equivalent distance. The engines utilized in drilling operations come in discrete sizes. As a result, transitioning to the next larger size of engine to achieve a given increase in power may result in a disproportionate increase in emissions. Well pad preparation and construction emissions are negligible compared to emissions from drilling and primarily consist of PM₁₀. Consolidating wells on a single pad rather than separate pads would have little effect on overall emissions and, in particular, would not reduce nitrogen oxide emissions. See Velasco (2020). While a well-clustering mitigation requirement would have the benefit of impacting fewer acres of agricultural land, it is reasonably expected to contribute to the cumulative overall emissions of criteria pollutants for which the San Joaquin Valley air basin is in nonattainment.

0059-41

The comment states that there is no evidence to support the statement in the SREIR (October 2020), Vol. 1, at 4.2-38, that drilling from a multi-well pad can expose operations to greater risks than drilling from individual single-well pads and may increase the potential magnitude of incidents resulting in disturbance to lands and habitat.

Please see Velasco (2020), in Appendix G of the SREIR (October 2020), Vol. 2, and Velasco (2021), pp. 3–4, attached to this comment response set. Mr. Velasco is an oilfield professional with over 20 years of personal experience in domestic and international drilling projects, including 10 years working on drilling projects in California characterized by complex geological conditions. He has worked on complex drilling projects in the San Joaquin Basin, a challenging area with tectonically stressed formations characterized by faults, traps, and stacked up pay zones. Mr. Velasco reports that, in the experience of his employer, California Resources Corporation (CRC), and its predecessor Occidental Petroleum, drilling in regions with geology containing a strong structural overprint leads to greater operational risk and ultimately the need for multiple redrills to achieve a singular target. In the highly faulted region of the San Joaquin upturn, geologic features and stress affect wellbore

stability and can contribute to borehole isotropic failure (i.e., failure to maintain proper borehole shape, increasing the likelihood of equipment failure) and/or total borehole failure. Formations at very shallow depths or with certain unstable clay constituents (as commonly found in Kern County) have frequent wellbore collapse when drilled at oblique orientations to stresses. Based on Mr. Velasco’s experience, clustering multiple wells on one pad would also create more disturbance to land and habitat to make room for simultaneous operations. See Velasco (2020). Overlapping drilling, completion, and facility operations would require increased equipment, including drilling rigs, completion rigs, construction cranes, heavy trucks, and loaders, and would result in increased personnel traffic, within a confined area on and around the multi-well pad. The higher density of activity increases the risk and potential magnitude of incidents.

0059-42

The comment notes that Table 4.2-18 in the SREIR (October 2020), Vol. 1, at 4.2-39, presented the percentage of leases in a dataset representing one company, CRC, that fall into specified size categories (i.e., 20.93 percent less than 20 acres, 11.63 percent between 20 and 39.9 acres, etc.) but did not identify the total number of acres, or percentage of total acreage, in each size category. By adding the number of acres per size category, the comment purports to demonstrate that “[s]eventy-six percent of mineral leases in Kern County are greater than 160 acres in size and 54 percent are greater than 320 acres.”

It is not clear how the comment's revised table (Table 2 in Comment 0059-42) was developed, since the comment text refers to percentages of mineral leases in Kern County, not to the dataset of CRC leases that are presented in the first three columns of the comment’s Table 2. Nevertheless, it is true that Table 4.2-18 in the SREIR did not identify the total number of acres, or percentage of total acreage, of the leases in each size category.

In response to this comment, the following text and table are deleted from the SREIR (October 2020), Vol. 1, at 4.2-39:

~~Many mineral leaseholds in Kern County are modest in size, limiting the quantity of resources that can be accessed by horizontal drilling across a single parcel. For example, the distribution of lease sizes in Kern County for California Resources Corporation is shown in Table 4.2-18. Over half of the mineral leases are less than 40 acres in size, and 20 percent of the leases are less than 20 acres, while only 7.26 percent are 640 acres or greater.~~

~~Table 4.2-18: Mineral Lease Sizes~~

<u>Mineral Lease Size (Acres)</u>	<u># Leases</u>	<u>% of Total</u>
<u>640 and greater</u>	<u>468</u>	<u>7.26</u>
<u>320—639.9</u>	<u>501</u>	<u>7.77</u>
<u>160—319.9</u>	<u>945</u>	<u>14.66</u>
<u>80—159.9</u>	<u>1,208</u>	<u>18.73</u>
<u>40—79.9</u>	<u>1,226</u>	<u>19.01</u>
<u>20—39.9</u>	<u>750</u>	<u>11.63</u>
<u><20</u>	<u>1,350</u>	<u>20.93</u>

~~Source: California Resources Corporation~~

This deletion does not affect the other constraints on well clustering and access by horizontal drilling. See Mills (2021), p.3. Where and to what extent multiple-well pads can be utilized to produce oil and gas from one or more leases depends on the language in the leases at issue. A lease of any size may restrict the ability to pool production with other leases, restrict the ability to use its surface for drilling or well pads, or limit where a pad may be placed in the first instance and what size it can be. These restrictions on where and how drilling may occur may be found not just in the original lease, but in various amendments to the lease that are of record (or in some cases, not of record). That some or most leases are larger than 160 acres does not demonstrate the feasibility of clustering on multiple-well pads. See also the October 16, 2020, letter from M. Mills, attached to this response set (Mills 2020).

0059-43

The comment recommends that MM 4.2-1.A be revised to require well clustering. Please see SRIER (October 2020), Vol. 1, 4.2-33–40 and Responses to Comments 0059-37 through 0059-42. The comment states that multi-well pads in Canada routinely achieve land disturbance rates of less than 1 acre per well, even with horizontal wells exceeding 10,000 feet, as opposed to up to 3 acres per well in the SREIR.

The comment does not provide a reference for this statement. Land disturbance factors in the SREIR were calculated based on photographic analysis of oil and gas development in Kern County as described in Appendix F of the 2015 FEIR and reflect existing practices in Kern County.

0059-44

The comment introduces other comments on MM 4.2-1.B in the SREIR (October 2020) but does not state a specific concern related to MM 4.2-1B. The comment describes a November 2018 study by the California Council on Science and Technology of orphan and idle wells in California.

Existing orphan and idle wells are properly considered part of the environmental baseline for CEQA purposes, not a consequence of the Project. Such wells are regulated by the State of California, and not by the County. Seeps, spills, or surface expressions from such wells are regulated under the Underground Injection Control (UIC) regulations administered by the California Geologic Energy Management Division (CalGEM). See SREIR (October 2020), Section 4.9.3, Regulatory Setting. The SREIR contains a detailed discussion of the UIC regulations, including requirements applicable to plugging and abandonment of wells. See SREIR (October 2020), Vol. 1, at 4.9-147–153. Idle wells are properly considered part of the environmental baseline for the Project, and the SREIR describes and analyzes potential impacts associated with future well abandonment and reactivation of idle wells in the Project Area. See SREIR (October 2020), Vol. 5, at 7-275 (2015 FEIR GR-Haz-2: Idle Wells). A new idle well process was added in the Revised Amended Ordinance, Section 19.98.145, to help facilitate public involvement, CalGEM enforcement, and applicant accountability, for compliance with CalGEM's idle well regulations. See SREIR (October 2020), Vol. 5, at 7-275 (2015 FEIR GR-Haz-2: Idle Wells); see also Response to Comment 0006-2 for additional discussion regarding orphan and idle wells.

0059-45

The comment states that applicants could easily shift wells to other surface parcels, including through directional drilling, to avoid removing legacy equipment on the same legal parcel as required by MM 4.2-1.B.

Physical and technological limitations constrain applicants from easily moving a well to another parcel and still reaching the desired targets. Please see Velasco (2021), pp. 1–2. The same constraints that restrict relocation of wells to clustered well pads restrict relocation to other parcels. Please see Response to Comment 0059-12 regarding the “same legal parcel” provision of MM 4.2-1.B.

0059-46

The comment states that most applicants will not own legacy equipment on the same parcel and that a mitigation bank must be created to enable such applicants to pay an in-lieu fee. The comment notes that legacy equipment is abundant and widely distributed in Kern County.

See Comment 0059-44, Table 3 and Figure 3. However, it is not possible to predict the number of future applicants for new wells located on Prime Farmland, Farmland of Statewide Importance, and Unique Farmland that will own or control legacy equipment on the same parcel subject to removal under MM 4.2-1.B. For this reason, the impact of agricultural land conversion, with mitigation, remains significant and unavoidable. See SREIR (October 2020), Vol. 1, at 4.2-40 and Responses to Comments 0059-10 through 0059-12. Creation of a mitigation bank is outside the scope of this SREIR and would be a separate project subject to separate CEQA review. See Response to Comment 0059-12.

0059-47

The comment reiterates the changes to MM 4.2-1.B regarding legacy equipment removal proposed in Comments 0059-9 through 0059-13 and recommends implementation of those changes as proposed in Comment 0059-31.

Please see Responses to Comments 0059-9 through 0059-13, and 0059-31.

0059-48

This comment introduces other comments regarding the adequacy of the SREIR (October 2020) noise analysis. The comment is introductory and does not require a detailed response.

0059-49

This comment introduces other comments on the adequacy of the SREIR (October 2020) noise analysis. The comment is introductory and does not require a detailed response. The comment acknowledges that the SREIR (October 2020) has been

updated to address the concerns identified in earlier comments, summarizes the noise mitigation measures, and introduces three issues which are the focus of later comments.

For responses regarding the noise measurement metrics, please see Responses to Comments 0059-50 through 0059-54. For responses regarding the use of DNL in the mitigation measures, please see Responses to Comments 0059-55 through 0059-56. For responses to comments regarding operational noise monitoring, please see Response to Comment 0059-57.

0059-50

The comment states that there is an error in the computation of the mitigation triggering distances in that these are calculated using an L_{eq} metric rather than a DNL metric.

The SREIR (August 2020) disclosed the varying Project noise levels that would meet these standards based on the ambient noise levels measures as part of the Environmental Noise Assessment. The SREIR (August 2020) concluded that “due to varying ambient noise levels across the Project Area, it is impossible to ensure a predictable increase in ambient noise levels using feasible mitigation measures. Even with all feasible mitigation measures, it is impossible to eliminate all construction noise; thus, temporary noise impacts are significant and unavoidable.” See SREIR (August 2020) at 4.12-30. The SREIR (October 2020) updated this analysis to assess the effects of Project construction noise against the lowest measured ambient noise from the Environmental Noise Assessment. At Site 12, the ambient noise was measured at 44.8 dB. Applying the allowable 5 dB increase resulted in a conservative incremental noise limit of 49 dB, the SREIR (October 2020) calculated the construction and operation noise contours for this 49 dB limit for various activities. These contours were based on noise measurements taken during the 2015 Environmental Noise Assessment. The SREIR (October 2020) explains that, for each activity, noise level measurements were taken in a minimum of four different directions from the activity to document the loudest direction of noise. For purposes of modeling, only noise from the loudest direction was used. The models assumed that the activity occurred at maximum volume for 24 hours a day and included no shielding as a result of buildings or other structures that may be in the sound propagation path. The contouring model also assumed atmospheric and topographic conditions conducive to the greatest sound propagation, which led to an over-prediction of noise levels by up to 6 dB.

In light of these highly conservative assumptions, the comment’s statement, that the mitigation screening distances can allow up to a 10 dB increase over DNL and fail to account for nighttime noise impacts, is inaccurate. The County’s consultant concluded that:

The L_{eq} metric is appropriate for the screening distances in light of the very conservative measurement and modeling methodologies used by the consultants in the 2015 FEIR. The L_{eq} is the equivalent sound pressure level and is commonly used to measure steady-state sound or noise and as such represents the sound as actually experienced by the sensitive receptor. SREIR (October 2020), Vol. 2, Appendix E, at 6.

Lead agencies may accept the determinations and conclusions reached by the expert or experts that prepared an EIR, even though other conclusions also might be reached by other experts. See *Center for Biological Diversity v. Dept. of Fish & Wildlife* (2014) 224 Cal.App.4th 1105, 1179-80; *Eureka Citizens v. City of Eureka* (2007) 147 Cal.App.4th 357, 371-72; *Greenebaum v. City of Los Angeles* (1984) 153 Cal.App.3d 391, 412 (it is not an “abuse of discretion” for a public agency “to give more weight to one set of ‘experts’ than to another”). The mitigation triggering distances using the 49 dB contour range up to 1.5 miles (for large-scale exploratory drilling) and nearly 0.75 miles (for drilling). In light of the conservative assumptions used in modeling the propagation of Project-related noise and the use of the lowest measured ambient, the use of the L_{eq} metric will not lead to the 10 dB exceedance predicted by this comment. If a sensitive receptor is located within the mitigation triggering distance, the applicant is then required to reduce the activity noise to achieve the applicable DNL standard. Regardless, the SREIR (August 2020) determined that noise impacts were significant and unavoidable because, while setbacks and mitigation trigger distances and noise attenuation strategies can reduce the effect of Project construction and operation activities, noise sensitivities vary based on individual tolerances and, depending on individual sensitivity, any incremental increase of that ambient noise level could be considered intrusive by the homeowner, church member, or other user of the sensitive receptor.

The SREIR (October 2020) updated the applicable mitigation measures to require additional mitigation. See Responses to Comments 0008-20 through 0008-22. The same concerns regarding varying individual tolerances and anomalous ambient conditions remain. There is no satisfactory means to measure the subjective effect of noise on every individual. Even with mitigation, noise impacts are significant and unavoidable.

0059-51

The comment states that the SREIR should utilize a 49 dB contour based on a DNL metric for the mitigation triggering distance and provides estimated distances for DNL noise levels.

For construction activities, the triggering distances proposed by the comment range up to 3.5 miles away (for large-scale exploratory drilling) and up to 1.67 miles (for drilling). For operation activities, the triggering distances proposed by the comment range from 460 to 1,210 feet. Distances of this magnitude would not meaningfully reduce noise levels in light of the SREIR's conservative modeling assumptions and use of a contour based on the lowest measured ambient and would instead impose an additional burden on applicants to produce reports with no effect, which would be inconsistent with the objective of establishing an efficient permitting system. Please see Response to Comment 0059-50. Please see Responses to Comments 0009-41 and 0009-89 through 0009-88, which address issues with the feasibility of certain measures due to potential takings liability.

0059-52

This comment states that the consultant's recommendation of DNL for assessment of existing conditions, Project noise, and significance thresholds is at odds with other statements in the consultant report supporting the use of a 49 dB contour based on the L_{eq} metric used for the mitigation triggering distances.

The Kern County General Plan establishes exterior noise limits based on the DNL standard. The noise thresholds used in the SREIR (October 2020) therefore use the DNL metric. Existing conditions and Project-related noise were analyzed using the DNL metric to determine whether there was a potential impact. If a sensitive receptor is located within the mitigation triggering distances, the applicant is required to prepare an Acoustic Noise Reduction Report and demonstrate compliance with the County's DNL noise thresholds. Because the mitigation triggering distances are based on the lowest measured ambient noise in the Project Area, they are overly conservative. The average ambient noise level in the Project Area was 54.7 dB, which would generally allow Project noise up to approximately 60 dB, but MM 4.12-1 and MM 4.12-2 require additional actions by the applicant if the nearest sensitive receptor is projected to experience even 49 dB of Project noise. The contours generated for the 49 dB level are also overly conservative due to, among other things, the use of sound measurements from the loudest direction of equipment, assuming the loudest measurement occurs continuously 24 hours a day over the life of the activity, the use of topographical and atmospheric conditions allowing the greatest sound propagation. Please see Response to Comment 0059-50. In light of the highly conservative assumptions used in calculating the contours, the County's consultant recommended the use the L_{eq} metric. This recommendation is internally consistent, in that the conservative assumptions ensure that the effects on nearby sensitive receptors will be assessed and mitigated to the County's DNL noise standard.

0059-53

The comment states that the use of the L_{eq} metric means that the SREIR (October 2020) does not account for nighttime noise and does not address noise exceedances in the quietest location.

The SREIR (October 2020) continues to require applicants to mitigate Project noise levels to achieve the Noise Standard, which utilizes the DNL metric. The Acoustic Noise Reduction Report requires the applicant to measure noise levels using DNL. The use of DNL accounts for potential sleep disturbance by penalizing nighttime noise. Please see Response to Comment 0008-25. The SREIR (October 2020) continues to ensure that Project noise is mitigated in even the quietest locations by establishing screening distances based on the lowest measured ambient noise in the Project Area and by calculating the L_{eq} contours using overly conservative assumptions. Please see Response to Comment 0059-50. The comment states that the SREIR (October 2020) should use conservative assumptions to calculate the mitigation triggering distances. These conservative assumptions were used in determining the mitigation triggering distances. The SREIR (October 2020) continues to account for nighttime noise effects and effects in the quietest regions of the Project Area.

0059-54

This comment states that the authors continue to disagree with the County's noise consultant. The disagreement is noted.

Please see Responses to Comments 0059-50 through 0059-53.

0059-55

The comment requests that MM 4.12-1 and MM 4.12-2 clearly state that reductions achieve the Noise Standard as measured using DNL.

Both mitigation measures require that, when an Acoustic Noise Reduction Report is required, the applicant must establish the baseline conditions using the DNL metric. Compliance is determined based on achieving the Noise Standard in DNL. MM 4.12-1 states: "The measurements shall show achievement of the stated average day-night noise level stated on the Site Plan." See SREIR (October 2020), Vol. 1, at 4.12-53.

0059-56

This comment requests that the mitigation require measurements of ambient noise at the sensitive receptor.

The mitigation measures do require this. See SREIR (October 2020), Vol. 1, at 4.12-52, 4.12-55. The comment requests that the mitigation establish basic measurement protocols, including the use of the DNL metric assessed over 72 hours to avoid confounding noise sources such as emergency sirens. The mitigation requires assessment of the DNL metric. See Response to Comment 0059-55. The DNL metric represents the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise occurring during nighttime hours and already accounts for atypical, intermittent noise conditions.

0059-57

The comment requests that operational mitigation include monitoring similar to construction mitigation.

The SREIR (October 2020) requires periodic monitoring of construction activities because these are the loudest sources of noise and, as described in the SREIR, may vary over time. See SREIR (October 2020), Vol. 1, at 4.12-27–28. The high level of noise and variability based on activity make periodic monitoring appropriate. The operational mitigation measure requires the applicant to demonstrate compliance with the Noise Standard. SREIR (October 2020), Vol. 1, at 4.12-55. Unlike construction noise, operational noise is both relatively quiet and consistent. The factors making periodic monitoring appropriate for construction are not present for operational noise. For a discussion regarding compliance and enforcement, please see Response to Comment 0008-22.

0059-58

This comment summarizes and states a conclusion to the preceding comments and does not require a detailed response. Please see Responses to Comments 0059-48 through 0059-57.

0059-59

The comment states that there were previous comments on the multi-well HRA in 2015 and on the SREIR (August 2020). The comment does not state a specific concern about the adequacy of the SREIR, and thus a detailed response is not required.

0059-60

The comment states that well density in Kern County is higher than the assumed well density in the multi-well HRA.

Please see Responses to Comments 0008-27 and 0008-58 through 0008-62. The comment also states that the SREIR does not include any conditions that would limit well density. This is accurate. There is no need to limit well density. The risk driver for health impacts from Project activities is drilling, not ongoing production operations. See SREIR (October 2020), Vol. 2, Appendix B-1, at 3-4 and SREIR (October 2020), Vol. 1, at 4.3-154. For purposes of the multi-well HRA the relevant inquiry is not the overall well density in any area in the County but rather (1) the density of wells being drilled proximate in time to each other, and (2) the density of these wells near a particular sensitive receptor such that the same sensitive receptor will be exposed to the risks from drilling multiple wells over time. Though the comment states that well density in Kern County is much higher than assumed in the multi-well HRA, the multi-well HRA does not assume well density for operating wells, but for wells being drilled at the same time or close in time. The comment does not state that there are particular sensitive receptors that are near to 633 wells in 1 square mile all being drilled in a short timeframe, and many of the areas of the County with higher well density are less populated. The overall well density in Kern County is not the appropriate metric by which to make assumptions for the multi-well HRA modeling when the health risk is predominately related to drilling.

The multi-well HRA assumes that forty-eight 13,000-foot wells would be drilled not only in close proximity to a single sensitive receptor but also close in time to each other, in order that they would impact one individual over their lifetime living at the same location. See SREIR (October 2020), Vol. 1, at 4.3-152–155. Given the time it takes to drill a 13,000-foot well, the likelihood of such deep wells being drilled so close together, and the number of drill rigs currently available in Kern County, the assumptions underlying the multi-well HRA are extremely conservative. Historically there have been 4 to 12 drill rigs in Kern County at any given time between 2015 and 2020, and since April 2020 there have only been three to four drill rigs operating in Kern County and this number is unlikely to increase in the near future given oil and gas production activities. SREIR (October 2020), Vol. 1, at 4.3-152; SREIR (October 2020), Vol. 2, Appendix B-1, at 3. The multi-well HRA scenario would

require all eight of the theoretical average number of rigs present in the County from 2015 to 2020 to be drilling in the same place for an entire year, jettisoning drilling throughout the rest of the County. Utilizing all four of the drill rigs currently operating in the County, it would take two years to drill the forty-eight 13,000-foot wells, and no other drilling in the County would be able to occur during that time. Only 3 percent of all wells in Kern County are drilled to depths of 10,000 feet or greater. These assumptions are only two of the many conservative assumptions utilized in the multi-well HRA. See SREIR (October 2020), Vol. 2, Appendix B-1, for a further explanation of the conservative assumptions underpinning the multi-well HRA analysis. The multi-HRA scenario remains a conservative and realistic assumption of Project activities. The SREIR contains a mitigation measure (MM 4.3-5) which reduces impacts of health risk from Project activities to below the SJVAPCD thresholds. See SREIR (October 2020), Vol. 1, at 4.3-158–159. The analysis in the SREIR and the multi-well HRA demonstrate that this mitigation measure would adequately protect the public from the potential health risks due to exposure from multiple wells. See SREIR (October 2020), Vol. 1, at 4.3-152–155; Vol. 2, Appendix B-1.

0059-61

The comment states that Project approval would open the door for a substantial increase in well drilling in Kern County and that the number of drill rigs would increase.

This is speculation, and the comment provides no evidence to support this assumption. Please see Response to Comment 0059-30 regarding historic operations in Kern County and operations since Project approval in 2015. The assumptions in the multi-well HRA are extremely conservative based on historic drilling activities in the County. For example, despite the fact that only 3 percent of wells in Kern County are drilled beyond 10,000 feet, the multi-well HRA assumed that all forty-eight wells would be 13,000 feet deep.

The comment next states that well drilling occurs over a relatively short time period compared to well operation and thus that emissions from onsite stationary source equipment, routine well operation, well maintenance, and other operations would result in more significant cancer impacts than short-term drilling. This is incorrect. The SREIR (October 2020) and the Technical Memorandum on HRAs (Appendix B-1 of the SREIR October [2020]) explain the multi-well HRA analysis in detail, including why chronic and acute impacts of well drilling are not the relevant analysis for health risks from Project activities. See also Responses to Comments 0008-27 and 0008-61. As explained in Appendix B-1:

While the multi-well HRA does not address chronic or acute impacts of cumulative well drilling and cancer risk is not the only toxic endpoint that could be considered, DPM results in approximately 99.9 percent of the risk associated with the multi-well scenario. Acute and chronic risk results are included in the ‘single well with production equipment’ scenarios. Even with the inclusion of extensive production equipment including engines, a cogeneration facility, several tanks, a flare and additional equipment, both the acute and chronic (non-cancer) impacts are well below the regulatory standard of 1. See SREIR (October 2020), Vol. 2, Appendix B-1, at 5; see also SREIR (October 2020), Vol. 1, at 4.3-154.

Thus, chronic and acute impacts are analyzed in the single-well HRAs, do not represent the driver of risk for Project activities, and are not necessary to be included in the multi-well HRA. Despite the fact that drilling may occur in a shorter timeframe than operational activities, this does not mean that health risk is linked to time of emissions. Drilling emissions are magnitudes higher than operational emissions and thus represent more health risk to sensitive receptors. No further mitigation is required, nor is the mitigation measure suggested by the comment tailored to address health risk from Project activities. See Response to Comment 0059-30. Limiting well density does not address at a level of specificity the health risk posed by oil and gas operations and thus the proposed mitigation is not tailored to Project impacts. By contrast, MM 4.3-5 is tailored to specific impacts from Project activities and modeled risk values and thus represents adequate mitigation to reduce health risk from Project activities to below the SJVAPCD threshold.

0059-62

The comment is an exhibit containing an example of an agricultural conservation easement deed in Kern County, in support of Comment 0059-18. Please see Response to Comment 0059-18.

0059-63

The comment is an exhibit containing an example of an agricultural conservation easement deed in Kern County, in support of Comment 59-18. Please see Response to Comment 0059-18.

0059-64

The comment is an exhibit containing a comment letter submitted on the 2015 Draft EIR, in support of Comment 0059-23. Please see Response to Comment 0059-23.



October 16, 2020

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Re: Comments on Draft Supplemental Recirculated Environmental Impact Report for Revisions to Title 19 – Kern County Zoning Ordinance 2020 (A), Focused on Oil and Gas Local Permitting (SCH # 2013081079)

Dear Ms. Hoover:

1. Introduction

This letter addresses the California Court of Appeal decision in the case, *King and Gardiner Farms, LLC, et al. v. County of Kern, et al.* (Feb. 25, 2020) 45 Cal.App.5th 814, regarding the Court's determination that the County's finding that the ordinance's conversion of agricultural land would be mitigated to a less-than-significant level was not supported by substantial evidence because the mitigation measures were inadequate. Plaintiffs and other opponents of the ordinance have urged the County to require well clustering to mitigate project impacts to agricultural lands. There are several reasons why such a mitigation measure would be infeasible.

I am able to speak to the fact that well clustering in Kern County is impracticable, given my experience in oil and gas land and title matters implicated in oil well drilling Kern County. I currently am a partner in the law firm of Stoel Rives LLP and a former chair of the firm's Natural Resources Industries Group and the Oil, Gas, Pipelines, and Mining Industry Team. As you also know, I am an attorney licensed to practice law before the courts of the State of California. My state bar number is 191762. I received my Juris Doctorate from the University of California, Davis, King Hall School of Law in 1997. I received a Bachelor of Science degree in environmental toxicology from the University of California, Davis's College of Agricultural and Environmental Sciences in 1994. I am a natural resources lawyer focusing on oil and gas law. I have been practicing in the field of oil and gas since the outset of my career and have worked on oil and gas matters in Kern County since 1997. I have been included in the *Best*

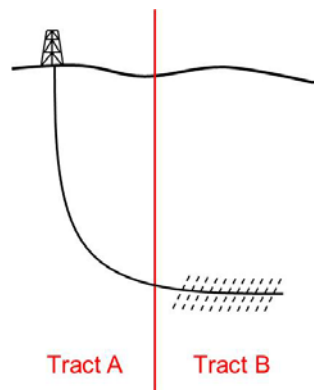
Lawyers in America® in the field of Oil & Gas Law for the years 2018–2021. Before joining Stoel Rives in 2009, I was a partner in the Sacramento law firm of Downey Brand LLP and a past chair of Downey Brand’s Energy, Land Use, and Minerals Practice Group. As the leader of Stoel Rives’s Oil and Gas Practice in California, I and my team have prepared over 128 drilling title, division order, and acquisition title opinions for mineral title issues in Kern County since 2009, and have represented several upstream oil and gas companies in connection with leasing, title trespass, and related subsurface development issues.

2. Discussion

2.1 Mandatory Well Clustering Is Infeasible As a Mitigation Measure

In order to drill from the surface of Tract A (in this case where the well cluster may be situated) to produce minerals from Tract B, the mineral owner or mineral lessee of Tract B must secure numerous rights to use Tract A for the benefit of the minerals in Tract B. Such rights are not gratuitously given, and in most cases are difficult to obtain because the surface of Tract A must be used for the development of Tract A’s mineral estate.

This “Scenario 1” is illustrated below.



First, the developer of minerals in Tract B must get the permission of the surface owner in Tract A for the well’s surface location and to pass through the surface estate of Tract A.

(a) Severed Mineral Estates

California law permits split estates, in which ownership of the mineral estate is severed from ownership of the surface estate. *Gerhard v. Stephens*, 68 Cal. 2d 864, 897-98 (1968); *Wall v. Shell Oil Co.*, 209 Cal. App. 2d 504, 510 (1962). California courts have not determined whether title to subsurface pore space (through which wells necessarily pass) is vested in the mineral or the surface estate. Compare *Cassinis v. Union Oil Co.*, 14 Cal. App. 4th 1770, 1783 (1993) (assuming, but not deciding, that the surface estate owner owned the pore space), with *Starrh & Starrh Cotton Growers v. Aera Energy LLC*, 153 Cal. App. 4th 583, 598 (2007) (indicating, in purported reliance on *Cassinis*, that pore space is part of the mineral estate). However, surface estate ownership is supported by the weight of case law addressing this issue.¹

¹ See, e.g., *Lightning Oil Co. v. Anadarko E&P Onshore, LLC*, 520 S.W.3d 39 (Tex. 2017); *Burlington Res. Oil & Gas Co. v. Lang & Sons Inc.*, 259 P.3d 766 (Mont. 2011); *Ellis v. Ark. La. Gas Co.*, 450 F. Supp. 412 (E.D. Okla. 1978); *Tate v. United Fuel Gas Co.*, 71 S.E.2d 65 (W.Va. 1952); *Dep’t of Transp. v. Goike*, 560 N.W.2d 365 (Mich. Ct. App. 1996); see also *Dabney-Johnston Oil Corp. v. Walden*, 4 Cal. 2d 637, 649 (1935) (oil and gas rights under California law

Indeed, the Texas Supreme Court held last year that a mineral estate owner could not preclude the surface estate owner from authorizing a third party to drill through hydrocarbon-bearing formations on the subject property, so long as doing so did not “infringe[]” on the exercise of mineral rights. *Lightning Oil Co.*, 520 S.W.3d at 49. California courts would likely conclude that a well passing through the subsurface of a property constitutes an occupancy or use of the surface estate.

The mineral estate is the dominant estate, and its owner has the implied right to enter upon the surface estate and make such use of the surface estate as is reasonably necessary for enjoyment of the associated mineral estate. Cal. Civ. Code § 806; *Cassinis*, 14 Cal. App. 4th at 1780; *Wall*, 209 Cal. App. 2d at 511. Whether a particular use of the surface estate is “reasonably necessary” is a question of fact, particular to the circumstances of each case. *Bourdieu v. Seaboard Oil Corp. of Del.*, 38 Cal. App. 2d 11, 18 (1940). California courts, though, have interpreted the “reasonably necessary” standard to give the mineral estate owner wide latitude.

If a particular facility is necessary and convenient to the operations of the oil and mineral owner, it may be placed anywhere upon the surface area in which he has the right of user, so long as such placement is reasonable under prevailing conditions and even though such placement in particular instances may work a hardship on the surface owner.^[2]

Wall, 209 Cal. App. 2d at 517. The mineral estate owner’s reasonable use “may preclude any other surface possession.” *Id.* at 511 (citing *Callahan v. Martin*, 3 Cal. 2d 110, 122 (1935)). The surface estate owner cannot object to the location of the mineral estate owner’s surface use “solely because it could have been placed elsewhere just as conveniently.” *Id.* at 517. Although these cases concern the mineral estate owner’s use of the physical surface, the same principles should apply to subsurface occupancy and use.

In Scenario 1, above, such use of the surface estate of Tract A exceeds the mineral estate owner’s implied right to use that surface estate, and is, therefore, an impermissible use of Tract A under California law.

are the “right to remove a part of the substance of the land”). *But see City of Kenai v. CINGSA*, 373 P.3d 473 (Alaska 2016) (construing state mineral reservation to include use of pore space for underground gas storage).

² Texas (and several other states) utilize the accommodation doctrine. *See, e.g., Getty Oil Co. v. Jones*, 470 S.W.2d 618, 621 (Tex. 1971) (requiring that the mineral estate owner and its lessee utilize reasonable alternatives, if available, that would not preclude or impair an existing use by the surface estate owner). To date, California courts have not adopted the accommodation doctrine.

(b) Surface Estate-Use Rights Do Not Extend to Mineral Estates on Other Lands

Implied surface estate-use rights do not extend to enjoyment of mineral estates on other lands. The surface estate subject to a severed mineral estate “may be subjected only to such burdens as are reasonably necessary to the full enjoyment of the mineral estate in such particular specific parcels and the surface area may not be burdened by installations or surface fixtures designed to serve oil producing facilities located without the parcels.” *Wall*, 209 Cal. App. 2d at 513 (emphasis added); *see also Dietz v. Mission Transfer Co.*, 95 Cal. 92, 96-97 (1892). In *Wall*, after the mineral estate on a large parcel had been severed, the surface estate was subdivided into a number of smaller parcels. The mineral estate lessee then drilled four wells on one of those surface parcels. All four were bottom holed outside that surface parcel but within the larger severed mineral parcel, and one of the four wells did not have a producing interval within that surface parcel. In addition, on that surface parcel the lessee located various other facilities that served these four wells and 13 other wells within the larger severed mineral parcel. *Wall*, 209 Cal. App. 2d at 509. The court held that the subsequent subdivision of the surface estate did not “deprive the owner of the oil and mineral estate of his rights in the entire parcel.” *Id.* at 513 (emphasis added).

The three *Bourdieu* cases addressed these issues extensively. *Bourdieu*, 38 Cal. App. 2d 11; *Bourdieu v. Seaboard Oil Corp. of Del.*, 48 Cal. App. 2d 429 (1941); *Bourdieu v. Seaboard Oil Corp.*, 63 Cal. App. 2d 201 (1944). In those cases, the surface estate owner alleged that the mineral estate lessee had committed a trespass by locating on the subject property a number of surface facilities serving both the associated mineral estate and many other lands within the Kettleman North Dome Oil Field. *See* 48 Cal. App. 2d 429. The court held that the lessee’s use of that surface estate to support operations on other lands was a continuing trespass for which the surface estate owner could recover damages accrued during the prior three years. 38 Cal. App. 2d at 22 (relying on the three-year statute of limitations for trespass or injury to real property).

As long as [lessee] confined its use of the surface to producing oil and gas from the [subject property], it was not a trespasser, but when it entered and used the surface for the production, treatment and handling of oil and gas from other lands, to that extent it became a trespasser.^[3]

63 Cal. App. 2d at 205 (emphasis added). “The question of the wrongful use of the land was not confined necessarily to the amount of land used, but also to the extent of the claimed wrongful use” of the property. *Id.* at 206 (emphasis added). The court also rejected the lessee’s argument

³ This reasoning is consistent with case law recognizing that the surface estate owner, not the mineral estate owner, has the right to authorize a third party’s use of the surface to produce minerals from an adjacent tract. *See Lightning Oil Co.*, 520 S.W.3d 39.

that its unit agreement could authorize using the subject property to support oil and gas development elsewhere in the unit.

[W]e find no provision in the language of any of the acts here involved [*i.e.*, the federal statutes under which the federal government reserved the subject mineral estates and the Mineral Leasing Act] which in any way grants the mineral lessee any additional right to the free and uninterrupted use of respondent's homestead in connection with operations involving an entire field. The field here concerned covers an area of seventeen miles in length and one and one-half miles in width. It would be unfair to hold that appellant's lease entitled it to further burden respondent's property with such additional facilities of all types as might be used in connection with the unit operation of the entire field without the consent of the homesteader.^[4]

Id. at 204 (emphasis added); *see also* 38 Cal. App. 2d at 22. In summary, under California law a mineral estate owner's implied surface estate-use rights are limited to enjoyment of its dominant mineral estate. Consequently, a well passing through an intermediary property to produce hydrocarbons from another property likely constitutes a trespass against the surface estate of the intermediary property.

(c) Even if Production Is Occurring on Both Tracts, the Mineral Estate Owner of the Burdened Surface Tract Must Consent

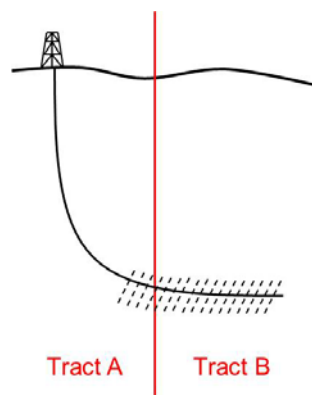
If the mineral owner of Tract B also happens to be the mineral lessee in Tract A, this does not make the situation any easier. In fact, it may be more difficult to accomplish the drilling on Tract A. Preliminarily, the Tract B mineral developer still must obtain the Tract A surface estate owner's permission to drill the well to Tract B. The surface of Tract A cannot be used to develop minerals on Tract B without the surface owner's permission.

In the rare instance that the mineral lessee is the same in both Tract A and Tract B, the fact that there is a common lessee of adjacent (or even nearby) tracts is not sufficient under the law to allow drilling from one tract into the other. Needless to say, having an ordinance that would require mineral developers to acquire such rights before drilling would make them even more elusive, competitive, and difficult to obtain, if they can be obtained at all in such a circumstance.

⁴ This interpretation of the scope of the federal government's mineral reservation under the Stock-Raising Homestead Act of 1916 is not uniformly accepted. *Entek GRB, LLC v. Stull Ranches LLC*, 763 F.3d 1252 (10th Cir. 2014) (holding that a unit agreement under the Mineral Leasing Act allows the unit operator to use the surface estate subject to a federal mineral reservation under the Stock-Raising Homestead Act of 1916 to access other lands within the unit).

Production from Tract A does not necessarily protect the mineral estate owner against liability for use of the surface estate to produce from the adjacent mineral estate, even if the mineral estate owner can demonstrate that it is not occupying or using any more of the surface than is reasonably necessary for production from Tract A. *See Bourdieu*, 63 Cal. App. 2d at 205 (trespass “to the extent” surface entered and used for production from other lands).

This is “Scenario 2.”



Depending upon the specifics of the situation, the Tract A surface estate owner could likely point to a variety of activities that exceed that which is necessary for production from Tract A (*e.g.*, longer periods of time a drill rig or workover rig is on the property, or personnel or contractors more frequently using the surface to access the well pad). As noted under Scenario 1, though, policy rationales could support a California finding that no trespass occurs if the mineral estate owner can demonstrate that it is not occupying or using any more of the surface than is necessary for production from the Tract A mineral estate.

Thus, the developer of minerals in Tract B must get the permission of the mineral owner or mineral lessee in Tract A to produce minerals from Tract B on Tract A. One way to accomplish this is to enter into a pooling agreement that shares production from the well on Tract A with the mineral owners and lessees on both Tracts A and B.

(d) Express Grants and Pooling Agreements

An express grant or reservation of broader surface estate use-rights can, and pooling properties in good faith may, modify the general rule against using a surface estate for the development of minerals in an adjacent property.

If there is an express grant or reservation of the right to use the surface estate for production of minerals from other properties, then the mineral estate owner can use the surface estate to do so. For example, a mineral estate’s implied surface estate-use right does not include the right to inject salt water produced from other properties. *See, e.g., Dick Props., LLC v. Paul H. Bowman Tr.*, 221 P.3d 618 (Kan. Ct. App. 2010).

Case law in some jurisdictions indicates that by voluntarily pooling a severed mineral estate with other parcels, the severed mineral estate owner gains the right to use the surface estate to support production on the other lands within the pool.⁵ For example, in *Key Operating & Equipment*,

⁵ Pooling and unitization are commonly used somewhat interchangeably, including in California statutes. However, for purposes of this letter, each reflects a distinct concept. Pooling concerns

Inc. v. Hegar, 435 S.W.3d 794 (Tex. 2014), the defendant had oil and gas leases for severed mineral estates on two adjacent parcels – Parcel A and Parcel B. The defendant pooled portions of these leases and used a private road crossing Parcel A to access the well on Parcel B. The surface estate owners of Parcel A sued, alleging that the lessee had no right to use the private road to access Parcel B. The court held that because “production from a tract pooled with others is legally treated as production from each tract within the unit, [the lessee] has the right to use the surface of any of the units’ [sic] pooled tracts in its production activities.” *Id.* at 798. The court reached this conclusion notwithstanding that the lessee’s well on Parcel B was not actually producing from Parcel A, although the court noted that the surface estate owners had not alleged bad faith pooling.⁶ *Id.* at 799. The court stated that a mineral estate owner also “had the right to pool.” *Id.* at 800. In other words, in Texas a mineral estate owner can use the surface within an area pooled in good faith to support production activities within the pool. *See also Prop. Owners of Leisure Land, Inc. v. Woolf & Magee, Inc.*, 786 S.W.2d 757, 760 (Tex. Ct. App. 1990); *Delhi Gas Pipeline Corp. v. Dixon*, 737 S.W.2d 96, 98 (Tex. Ct. App. 1987) (mineral estate owner has “the right to use as much of the surface estate as is reasonably necessary to produce oil or gas from a well located on a production unit with which the tract has been unitized”); *Kysar v. Amoco Prod. Co.*, 93 P.3d 1272, 1282 (N.M. 2004) (lessee can use leased surface within pooled unit, but cannot use leased surface outside that same pooled unit, to support operations on other lands within pooled unit); *Reimer v. Gulf Oil Corp.*, 664 S.W.2d 456 (Ark. 1984) (lessee of severed mineral interest can use surface to support operations on other lands within the same pooled unit when lease authorizes pooling).

However, case law addressing the scope of surface estate-use rights with respect to voluntary pooling is limited, there is no California case law squarely addressing this issue, and the *Bourdieu* cases rejected the argument that voluntary unitization could authorize a mineral estate owner to use the surface estate to support operations on other properties within the field. *Bourdieu*, 38 Cal. App. 2d at 22; *Bourdieu*, 63 Cal. App. 2d at 204; Williams & Meyers, OIL AND GAS LAW § 218.4 (2017) (“Absent such express provision [in the deed or lease] or statutory authority, clearly the use of the surface by a mineral owner or lessee in connection with operations on other premises constitutes an excessive user of his surface easements.”).

Consequently, it is not clear that voluntary pooling of severed mineral interests in California would achieve the desired result and insulate the mineral estate owner from all potential liability to the surface owner. There is more abundant case law that reaches the desired result in the

a single well (typically within a spacing unit), and unitization refers to the joint operation of many properties over a producing reservoir.

⁶ *See, e.g., Celsius Energy Co. v. Mid Am. Petroleum, Inc.*, 894 F.2d 1238, 1240-41 (10th Cir. 1990) (geology and consideration of scientific data relevant to whether pooling was done in good faith); *Elliot v. Davis*, 553 S.W.2d 223, 227 (Tex. Ct. App. 1977) (configuration of the pooled area, timing with respect to expiration of the lease’s primary term, and failure to consider geological basis for pool relevant to question of whether lessee pooled in good faith).

context of pooling or unitization ordered or approved by a state regulatory body.⁷ California statutory authority exists for compulsory pooling and unitization by the State Oil and Gas Supervisor in certain circumstances, but in practice these limited authorities are rarely available today. *See* Cal. Pub. Res. Code §§ 3608-3659, 3640-3659; 14 Cal. Code of Regs. § 1721 *et seq.*, § 1810 *et seq.* Due to its narrow application in California, compulsory pooling or unitization will likely not be available in most circumstances.

(e) Offset Well Requirements to Adjoining Lessors

Additionally, if the Tract B mineral developer also has a lease on Tract A, it may have obligations to the mineral owners in Tract A under its lease that must be satisfied. These obligations may require the mineral developer of Tract B who drills from Tract A to drill an offset well to ensure that the minerals on Tract A are not drained by the well producing from Tract B. Offset well provisions in leases have specific requirements for areas in which such wells must be drilled and if wells must be clustered, these obligations may not be met in every instance. Moreover, the offset well provision in many leases can require the developer of the minerals in Tract B to drill wells it would not otherwise want to drill.

To the extent that they do not conflict with express covenants, California oil and gas leases are subject to an implied covenant “to use reasonable diligence in the . . . protection [of the leased lands] from drainage through wells on adjoining lands.” *Hartman Ranch Co. v. Associated Oil Co.*, 10 Cal.2d 232, 239 (1937) (distinguishing between express covenant to develop leasehold from implied covenant to protect against drainage). California case law also recognizes that a lessee “operating two adjacent properties under different leases from difference [sic] owners and with different groups of overriding royalty holders . . . is in the position of representing potentially adverse interests.” *Fed. Oil. Co. v. Brower*, 36 Cal.2d 367, 371 (1950) (citing *Hartman Ranch Co.*, 10 Cal.2d at 241-242; *R.R. Bush Oil Co. v. Beverly-Lincoln Land Co.*, 69 Cal.App.2d 246, 251-252 (1945)).

⁷ *See, e.g., Krenz v. XTO Energy, Inc.*, 890 N.W.2d 222, 238-39 (N.D. 2017) (when oil and gas lease of severed mineral estate included in a spacing unit subject to compulsory pooling order from North Dakota Industrial Commission, the lessee could use the surface of the leased land outside the spacing unit to support operations on unleased lands within spacing unit); *Nelson v. Texaco Inc.*, 525 P.2d 1263, 1266 (Okla. Ct. App. 1974) (operator of unit approved under Oklahoma Unitization Act has right to use surface of unit without regard for property lines); *Gulf Oil Corp. v. Deese*, 153 So. 2d 614 (Ala. 1963) (lessee of severed mineral estate can use surface within pooled unit created by order of the State Oil and Gas Board to access well pad on other property within pooled unit). *But see* Bruce M. Kramer, “The Legal Framework for Analyzing Multiple Surface Use Issues,” *Severed Minerals, Split Estates, Rights of Access, and Surface Use in Mineral Extraction Operations* (Rocky Mt. Min. L. Fdn. 2005) (stating generally that the normal rule “changes when either voluntary or compulsory pooling or unitization occurs”).

To prevent abuses from arising because of these conflicting interests the remedy is not, however, to require the lessee of adjoining tracts to pay each group of royalty holders their full royalties on all of the oil produced from both tracts, but to require the lessee so to conduct his operations that no drainage occurs from one tract to the other.

Id. This is an implied covenant. *See R.R. Bush Oil Co.*, 69 Cal.App.2d at 251 (recognizing “an implied obligation on the part of an oil and gas lessee to refrain from taking any affirmative course of action which will result in draining a substantial quantity of the oil [or gas] from the lessor’s property”).

California contracts are also subject to an implied covenant of good faith and fair dealing requiring that “neither party will do anything which will injure the right of the other to receive the benefits of the agreement.” *Comunale v. Traders & General Ins. Co.*, 50 Cal.2d 654, 658 (1958). This covenant is read into contracts to protect the express covenants or promises of the contract. *Carma Devs. (Cal.), Inc. v. Marathon Dev. Cal., Inc.*, 2 Cal.4th 342, 373 (1992).

It is of course a simple matter to determine whether given conduct is within the bounds of a contract’s express terms. For this it is enough that the conduct is either expressly permitted or at least not prohibited. Difficulty arises in deciding whether such conduct, though not prohibited, is nevertheless contrary to the contract’s purposes and the parties’ legitimate expectations.

Id. This implied covenant “finds particular application in situations where one party is invested with a discretionary power affecting the rights of another,” although it “should never be read to vary express terms.” *Id.* at 372, 374. Parties “are free, within reasonable limits at least, to agree upon the standards by which application of the covenant is to be measured,” but they cannot disclaim this implied covenant. *Freeman & Mills, Inc. v. Belcher Oil Co.*, 11 Cal.4th 85, 91 (1995) (quoting *Seaman’s Direct Buying Service, Inc. v. Standard Oil Co.*, 36 Cal.3d 752, 769 (1984)).

In the absence of a conflicting provision in the lease, an oil and gas lessee in California is subject to an implied covenant to protect the leased land from drainage. *See Hartman Ranch*, 10 Cal. 2d at 239; *Jones v. Interstate Oil Corp.*, 115 Cal. App. 302 (1931). If a third party is causing the drainage, this implied covenant only obligates the lessee to drill an offset well if an ordinarily prudent operator would drill such a well. *R. R. Bush Oil Co.*, 69 Cal. App. 2d at 252. However, a lessee that has leased adjoining parcels from different lessors is subject to a stricter implied covenant, namely, to refrain from using one property to drain oil and gas from the other property. *Hartman Ranch*, 10 Cal. 2d at 241-42; *R. R. Bush Oil Co.*, 69 Cal. App. 2d at 251-52 (suggesting that this implied covenant is implicated by the drainage of a “substantial quantity” of oil).

Beyond the obligation to drill an offset well, an oil and gas lease can contain a requirement to pay compensatory royalties to the mineral owner of Tract A for a well producing from Tract B that is draining Tract A. If this stricter implied covenant against drainage is breached, the lessor of the drained property is entitled to its royalty on the oil and gas drained from its land. *R. R. Bush Oil Co.*, 69 Cal. App. 2d at 252. Such a requirement is often in lieu of drilling an offset well.

(f) Without Necessary Consents, the Result Is a Trespass

If these legal consents from the various surface and mineral estate owners in Tract A are not obtained, then the well cannot be drilled or else the mineral developer in Tract B would be liable for trespass. When the mineral estate owner impermissibly uses the surface estate, the surface estate owner can sue for trespass and seek to recover damages and/or obtain an injunction against the trespass.⁸ “Where one has permission to use land for a particular purpose and proceeds to abuse the privilege, or commits any act hostile to the interests of the lessor, he becomes a trespasser.” *Cassinios*, 14 Cal. App. 4th at 1780. The essence of the cause of action for trespass is an “unauthorized entry” onto the land of another. *Civic W. Corp. v. Zila Indus., Inc.*, 66 Cal. App. 3d 1, 16 (1977).

2.2 A Legal, Surface Estate Lot of Agricultural Land Generally Has Multiple Mineral Estate Owners and/or Oil and Gas Leases, which Exacerbates the Consent Impediments a Well Clustering and Makes Well Clustering an Infeasible Mitigation Measure

Most mineral tracts in Kern County that are producing tracts are composed of leases fewer than 640 acres. The Kern County lease and title records of California Resources Corporation (“CRC”)—with which I am familiar, as CRC is a client of Stoel Rives—supports this conclusion. Only producing tracts currently have oil and gas wells in production. It is the exception, not the rule, to have only one record title owner in a mineral tract. Most mineral rights in Kern County are owned by at least two or more mineral owners. I have encountered some tracts in Kern County that have hundreds of fractional owners. While each mineral tract may have the same owners, generally only one owner is listed on the tax collector’s rolls for purposes of mailing property tax bills.⁹

⁸ Other potential causes of action include negligence and nuisance. *See, e.g., Sun Oil Co. v. Nunnery*, 170 So. 2d 24, 31 (Miss. 1964) (affirming jury decision that lessee was negligent in clearing land for well concurrently with formation test that determined well would not be drilled); *Cassinios*, 14 Cal. App. 4th at 1785 (nuisance alleged).

⁹ According to the Board of Equalizations, Assessors’ Handbook: “In the case of multiple owners of undivided interests in one parcel, put only one or two names on the roll, followed by

Fractured mineral ownership makes securing the necessary rights described above in Section 2.1 of this letter all the more complicated, challenging, and unlikely to be achieved as to all owners, which would result in an ability to legally produce minerals in Kern County. Such a regulatory requirement would result in a taking of the minerals unable to be produced due to the County's well clustering mitigation measure.

Very truly yours,



Michael N. Mills

‘et al.’ When there are more than two owners, an assessor might find it impractical to identify on the roll all persons holding an undivided interest in the property.”

<https://www.boe.ca.gov/proptaxes/pdf/ah201.pdf>



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January 13, 2021

Introduction

This memorandum supplements a prior letter, dated October 16, 2020, that I prepared addressing the California Court of Appeal decision in the case, *King and Gardiner Farms, LLC, et al. v. County of Kern, et al.* (Feb. 25, 2020) 45 Cal.App.5th 814, and in particular the Court's determination that the County's finding that the ordinance's conversion of agricultural land would be mitigated to a less-than-significant level was not supported by substantial evidence because the mitigation measures were inadequate. Plaintiffs and other opponents of the ordinance have urged the County to require well clustering to mitigate project impacts to agricultural lands and continue to do so after reviewing the SREIR. In addition to the reasons in my October 16, 2020 letter, there are several other reasons why such a mitigation measure would be infeasible.

I am able to speak to the fact that well clustering in Kern County is impracticable, given my experience in oil and gas land and title matters implicated in oil well drilling in Kern County. I currently am a partner in the law firm of Stoel Rives LLP and a former chair of the firm's Natural Resources Industries Group and the Oil, Gas, Pipelines, and Mining Industry Team. I am an attorney licensed to practice law before the courts of the State of California. My state bar number is 191762. I received my Juris Doctorate from the University of California, Davis, King Hall School of Law in 1997. I received a Bachelor of Science degree in environmental toxicology from the University of California, Davis College of Agricultural and Environmental Sciences in 1994. I am a natural resources lawyer focusing on oil and gas law. I have been practicing in the field of oil and gas since the outset of my career and have worked on oil and gas matters in Kern County since 1997. I have been included in the *Best Lawyers in America*® in the field of Oil & Gas Law for the years 2018–2021. Before joining Stoel Rives in 2009, I was a partner in the Sacramento law firm of Downey Brand LLP and a past chair of Downey Brand's Energy, Land Use, and Minerals Practice Group. As the leader of Stoel Rives' Oil and Gas Practice in California, I and my team have prepared over 128 drilling title, division order, and acquisition title opinions for mineral title issues in Kern County since 2009, and have represented several upstream oil and gas companies in connection with leasing, title trespass, and related subsurface development issues.

Discussion

1. Oil and gas leases are not necessarily larger on average than surface parcels.

Plaintiffs have retained J. David Hughes, a Canadian earth scientist, to opine on Kern County oil and gas land title matters. Mr. Hughes claims that "subsurface leases tend to be much larger on average than surface parcels." Hughes December 10, 2020 Report at pp. 3 – 4. This statement is made to refute the SREIR claim on page 4.2-34 that single well-pads are needed because "one legal lot of agricultural land could have multiple distinct ownership subsurface leases." As the sole support for his statement, Mr. Hughes includes a figure, Figure 1., that purports to rely on Kern County Assessor data. Mr. Hughes is incorrect.

Data I obtained from California Resources Corporation shows that Mr. Hughes' Figure 1., while purportedly showing leases that are currently *assessed*, fails to include *all* leases in the area depicted in his Figure 1, as well as all mineral owners of those leases. (See Enclosure A.) Enclosure A contains information on *all* recorded, not only assessed, oil and gas leases in the area east of the City of Shafter, which is an area shown in Mr. Hughes' Figure 1. Not all recorded oil and gas leases are assessed, and not all mineral interests are assessed. Therefore, the data on which Mr. Hughes relies is incomplete. I am personally familiar with this area, and the oil and gas leases that are recorded within it, as I and my practice group have examined title and prepared numerous title opinions for California Resources Corporation in the area depicted on Figure 1.

As can be seen in Enclosure A, numerous leases exist and are of public record on single surface tracts in this area of Kern County, and certainly far more than Mr. Hughes has disclosed. The same is true for the number of mineral owners. Enclosure A specifically shows certain pooling units that have been agreed upon by lessors and the number of leases in each. California does not have forced pooling, so all of these units have been approved by the lessors/owners in some fashion. In addition to the number of leases and number of owners, Mr. Hughes' response also ignores the fact that not all of these leases have the same terms. The differences and variations in lease language matter and will, in many cases, make the well-clustering mitigation measure infeasible. In order to have multiple-well pads for wells producing from various leases, the various mineral owners must consent to the arrangement or the individual leases themselves must contain the necessary language that would allow for this to occur. Such variations in lease language include drilling obligations (spatial drilling locations to fully drill a lease), surface access waivers (the inability to drill a well from a surface location on the lease), different terms of duration (and different dates of expiration) and, at times, limitations on the depths that are subject to the lease itself. For these reasons, the mere fact that the lessee under multiple leases is the same does not, by itself, make drilling from a multiple-well pad any easier or more practicable.

As I also previously explained in my October 16, 2020 letter, Mr. Hughes also has ignored the need for pass-through rights for lateral wellbores, as well as pooling rights, if a well is to produce from multiple leases from a single location. These rights are not automatically afforded or given to an operator. They must be negotiated for, and obtained from, the surface owner in the case of pass-through rights. A surface owner is not under any obligation to oblige an oil and gas operator with subsurface drilling activities that do not benefit his/her parcel or the mineral rights in his/her parcel. And in the case of pooling rights, these rights must be negotiated and obtained from the mineral owners or lessors of the minerals. The County has no legal authority to command pooling, what is legally known as forced pooling, or to force an unwilling surface owner to grant an oil and gas operator pass-through rights.

Mr. Hughes, who relies heavily on his experiences with well-clustering in Canada, may not be familiar with these principles because the law of pass-through rights in Canada is not like those in California. In Canada, the Crown owns the majority of subsurface rights, including the rights to materials such as minerals, petroleum, and natural gas. (British Columbia Oil & Gas Commission, Land Owner's Information Guide for Oil and Gas Activities in British Columbia, at 9, available at: https://www.bccgc.ca/files/resources/BCOCG_lo-guideweb-viewjul-2018.pdf.)

Crown land is public land or land belonging to the government that has not been granted or conveyed for use by another party. (*Id.* at 8.) The private sector develops and produces mineral resources through petroleum and natural gas (“PNG”) tenure agreements with the applicable province. (*Id.*) If oil and gas activities are proposed on privately owned land, once a company secures a PNG tenure and the requisite oil and gas permits, it must also negotiate a surface lease agreement with the private land owner. (*Id.* at 11.) If no surface access agreement between the parties can be reached, the company can apply to the Surface Rights Board for a right-of-entry order which would allow the company to enter the land and perform the permitted development. (*Id.* at 12; Alberta Energy Regulator, Proposed Oil and Gas Wells, Pipelines, and Facilities – EnerFAQ, A Landowner’s Guide, available at: <https://www.aer.ca/providing-information/news-and-resources/enerfaqs-and-fact-sheets/enerfaqs-landowner>.) If proposed development activities fall outside of the SRB’s jurisdiction, a company can seek land access via the Expropriation Act. (Land Owner’s Information Guide for Oil and Gas Activities in British Columbia, at 12.) Thus, in Canada, unlike in the U.S., a company that has received the required oil and gas permits has other avenues to obtain the necessary surface access should the private landowner not consent to such access.

2. The percentage of gross acreage covered by Table 4.2-18 in the SREIR is irrelevant to the legal considerations that actually limit the ability to mandate multi-well pads.

The SREIR states: “Many mineral leaseholds in Kern County are modest in size, limiting the quantity of resources that can be accessed by horizontal drilling across a single parcel. For example, the distribution of lease sizes in Kern County for California Resources Corporation is shown in Table 4.2-18. Over half of the mineral leases are less than 40 acres in size, and 20% of the leases are less than 20 acres, while only 7.26% are 640 acres or greater.”

Mr. Hughes attempts to discount this table by focusing on the percent of total or gross acres in each category. Again, as stated above, Mr. Hughes’ focus on the larger subset of leases is irrelevant to the County’s ability to mandate the use of multiple-well pads. Where and to what extent multiple-well pads can be utilized to produce oil and gas from one or more leases depends on the language in the lease(s) at issue. I explained these legal principles in great detail in my October 16, 2020 letter. A lease – of any size – may: (a) restrict the ability to pool production with other leases, (b) restrict the ability to use its surface for drilling or well-pads, or (c) limit where a pad may be placed in the first instance and what size it can be. These restrictions on where and how drilling may occur may be found not just in the original lease, but in various amendments to the lease that are of record (or in some cases, not of record). Simply claiming that some or most leases are larger than 160 acres does not amount to a proxy for the feasibility of multiple-well pads.

Very truly yours,



Michael N. Mills

Encl. (A)

0 0.25 0.5 1 Miles

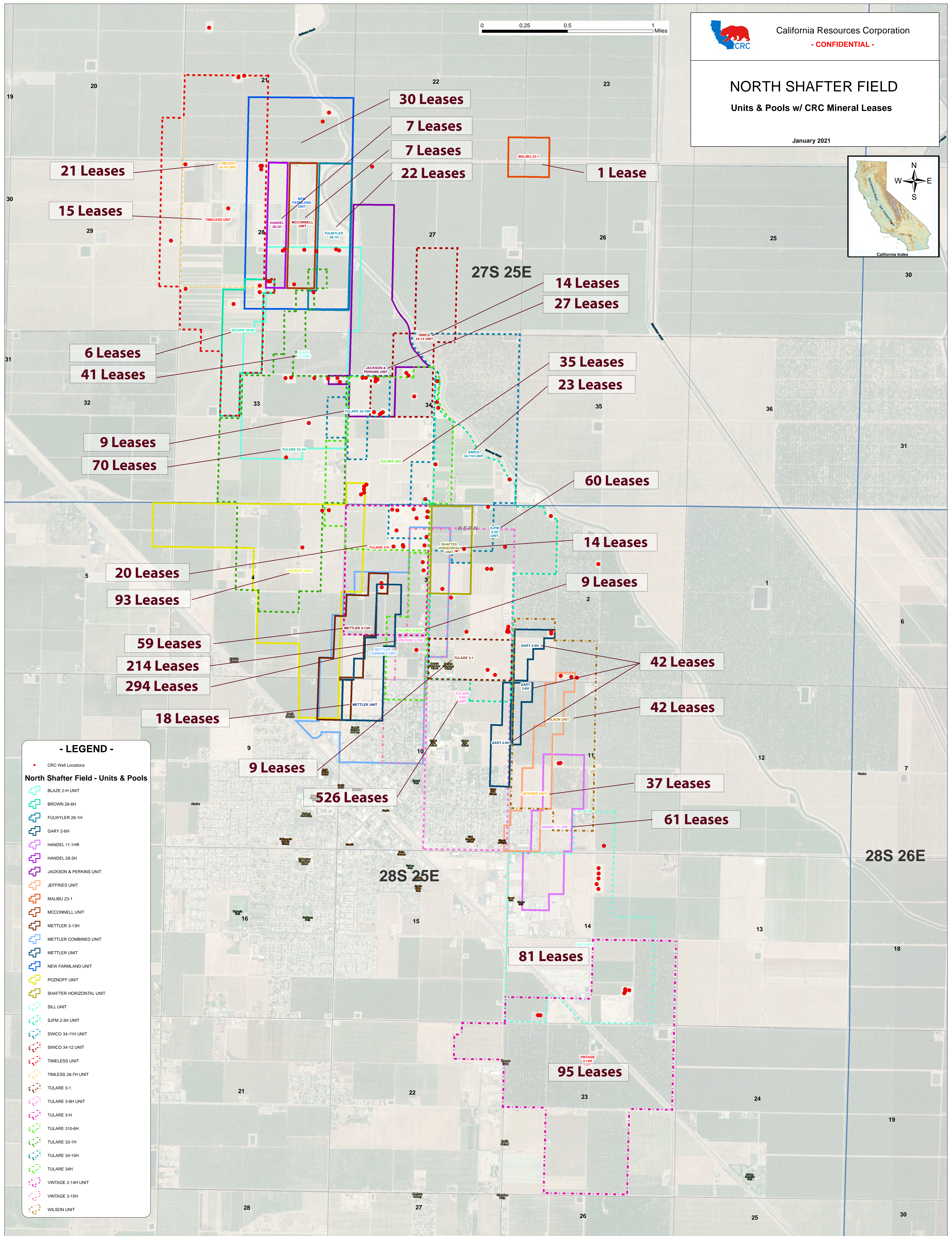
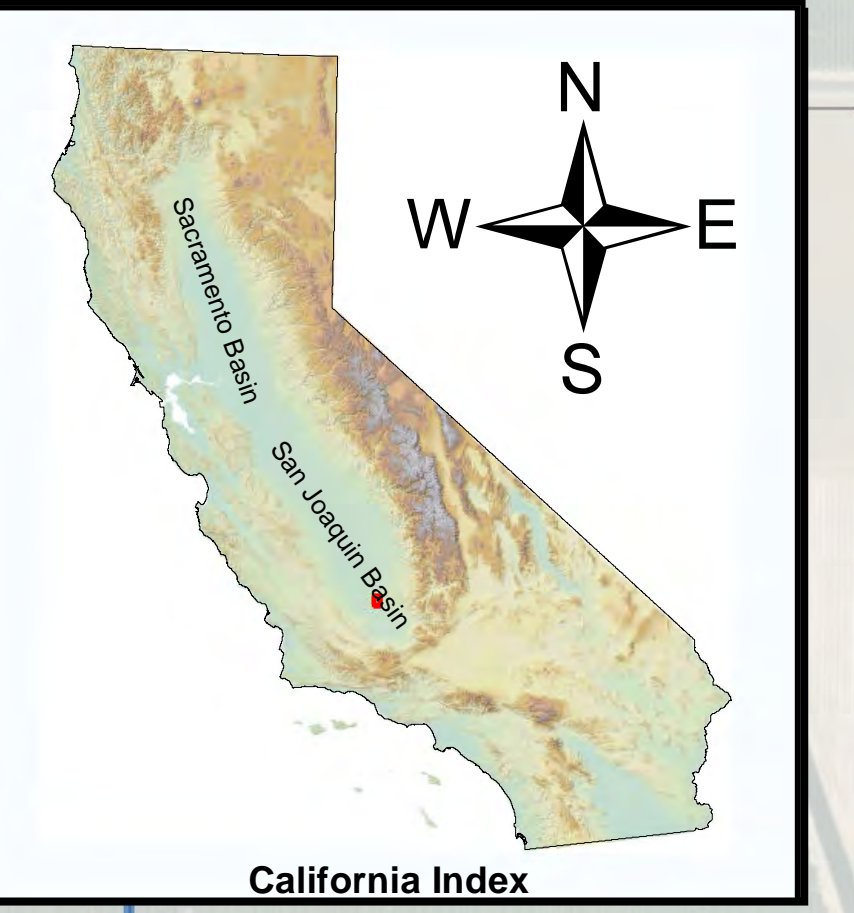


California Resources Corporation
- CONFIDENTIAL -

NORTH SHAFTER FIELD

Units & Pools w/ CRC Mineral Leases

January 2021



- LEGEND -

- CRC Well Locations
- North Shafter Field - Units & Pools**
- BLAZE 2-H UNIT
- BROWN 28-6H
- FULWYLER 28-1H
- GARY 2-6H
- HANDEL 11-1HR
- HANDEL 28-3H
- JACKSON & PERKINS UNIT
- JEFFRIES UNIT
- MALIBU 23-1
- MCCONNELL UNIT
- METTLER 3-13H
- METTLER COMBINED UNIT
- METTLER UNIT
- NEW FARMLAND UNIT
- POZNOFF UNIT
- SHAFTER HORIZONTAL UNIT
- SILL UNIT
- SJFM 2-3H UNIT
- SWICO 34-11H UNIT
- SWICO 34-12 UNIT
- TIMELESS UNIT
- TIMELESS 28-7H UNIT
- TULARE 3-1
- TULARE 3-6H UNIT
- TULARE 3-H
- TULARE 310-6H
- TULARE 33-1H
- TULARE 34-10H
- TULARE 34H
- VINTAGE 2-14H UNIT
- VINTAGE 3-15H
- WILSON UNIT

January 13, 2021

My name is Alejandro Velasco, I have been an oilfield professional since 1998, when I joined a major oilfield service company. I have vast experience in drilling, both in domestic and international projects. I have participated in the well construction process of High Temperature/High Pressure (HTHP) projects in the north of Mexico, of large horizontal prospects in Permian Basin, and for the last ten years I have had the opportunity of working in the drilling department of a major operator in the state of California. During this time I have had the opportunity of drilling quite complex projects in the San Joaquin Basin, a challenging area with tectonically stressed formations that have created a very unique environment in terms of field development: faults, traps, and stacked up pay zones are situations that my department deals with on regular basis, and we continuously work with the subsurface team to find the best possible solution to develop our many mature fields as efficiently as possible, while managing the impact of our activity to any neighboring industry

This memorandum addresses comments #3 and #5 of the “Comment on Draft Comment on Draft Supplemental Recirculated Environmental Impact Report. Revisions to the Kern County Zoning Ordinance – 2020A” prepared by J. David Hughes, dated December 10, 2020.

Response to #3:

Hughes’ Table 1 “Lateral offset attainable with direction wells drilled at angles between 10 and 80 degrees” incorrectly assumes that wells will be drilled starting at an angle of 10 degrees, 20 degrees, 30 degrees, etc. However, this is not how directional drilling occurs and does not account for the gradual curvature of the well bore (referred to as the “build rate”) that is necessary to achieve a given inclination from vertical, based on physical and equipment limitations. The total length of the well bore or Measured Depth (MD), including its gradual curvature, will therefore be greater than the depth of a linear bore at a fixed angle. Table 1 also does not take into consideration the initial vertical footage that must be drilled before beginning to deviate the curving bore from vertical. In addition, Table 1 does not account for constraints on lateral offsets due to the fact that, for EOR projects, wells (both

injectors and producers) must be specifically and uniformly spaced, to enable even reservoir heating and efficient flow of hydrocarbons to the well bore.

Many wells drilled in Kern County access a series of reservoir targets at specific depths, referred to as a “vertically stacked pay.” The drilling plan is designed to efficiently intercept the vertical array of pay zones by hitting each target in turn at specific angles and

orientations. These constraints are particularly important in shallow wells, which are predominant in Kern County as shown in Hughes' Figure 2 (majority of wells are less than 2,000 feet deep). With such shallow wells, there is less footage and therefore less flexibility to achieve the desired angle and orientation to hit each of targets in the vertically stacked pay zones.

For example, see Diagram 1, illustrating a heavy oil EOR well – where artificial lift equipment is required - with target depth of 1700 feet True Vertical Depth (TVD) for the first pay zone. First, the well will have to drill a vertical hole from surface to 500 feet TVD, which is best practice to reduce the sideloads that the tubing and rods will experience throughout the life of the well. Second, after reaching 500 feet TVD, the well can begin its gradual curvature (build rate) at 4 degrees/100 feet, up to 30 degrees inclination. This will require an additional 716.2 feet TVD to achieve said inclination. That brings the total to 1216.2 feet TVD. Third, to achieve a hypothetical step out or offset from well center in order to reach the target, the well will hold a tangent section of 500 feet MD which will require another 433 feet TVD. That now brings the total to 1649.2 feet TVD. Lastly, the well will need to curve back to a vertical orientation in order to enter to enter the reservoir vertically. This requires reducing the inclination back to 0 degrees, requiring an additional 716.2 feet TVD, which brings the total to 2,365 feet TVD. In other words, it is not possible to curve the well bore sufficiently tightly in order to reach the target reservoir at 1,700 feet TVD while maintaining proper EOR well spacing, since the minimum vertical depth to accommodate the gradually curvature of the bore extends beyond the target depth of 2,365 feet TVD.

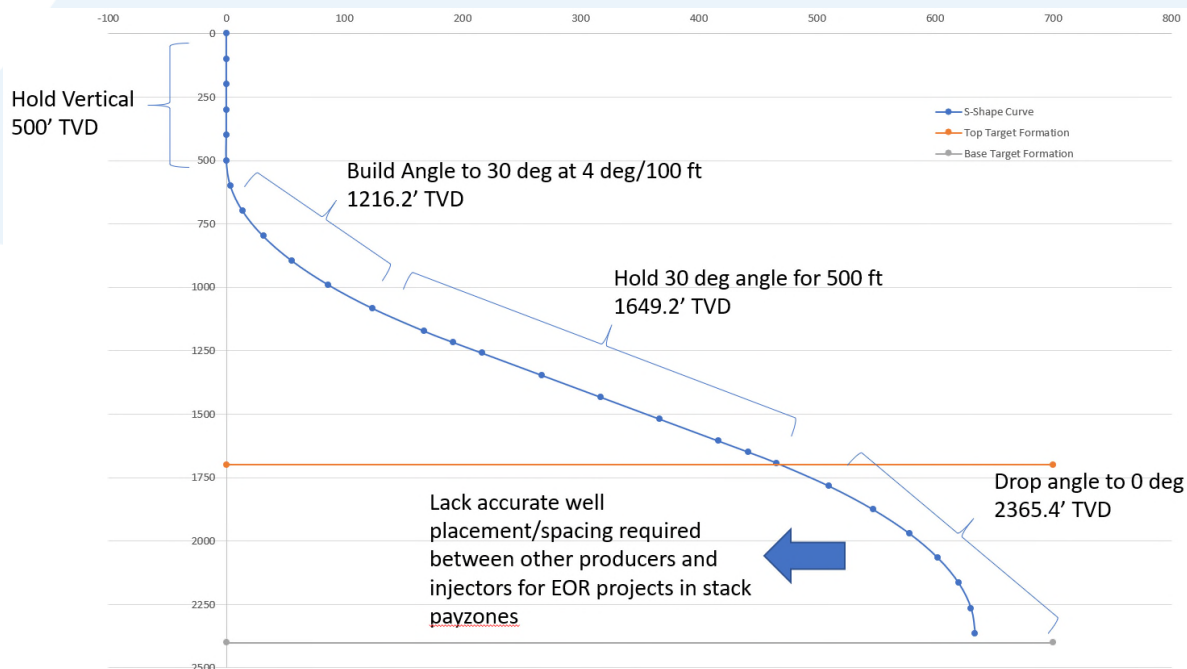


Fig. 1. Diagram of a shallow S-shape well.

In sum, the simple linear drilling distances suggested in Hughes' Table 1 understate actual drilling distances because they fail to take into account the complex pathways of real world drill bores. Moreover, in shallow wells which predominate in the County, there often will not be sufficient room to configure such complicated pathways.

As Hughes' Figure 2 illustrates, though the majority of directional wells in Kern County are less than 2,000 feet deep, deeper wells do exist, allowing greater flexibility for designing drilling to reach desired targets. The geology must be amenable to drilling laterally, in addition to the wells being deep enough to accommodate gradual horizontal turns. However, the complex geological structures typical in Kern County are unfavorable for long distance horizontal drilling such as occurs in other parts of the U.S., outside California.

Response to #5:

It is the experience of this company and our predecessors that drilling in regions with geology containing a strong structural overprint leads to greater operational risk and ultimately the need for multiple redrills to achieve a singular target. In 2005 Occidental Petroleum (former parent company to CRC) conducted an examination of stress and wellbore stability of the highly faulted region of the San Joaquin upturn. The work involved building geomechanical models based on the data from several wells in the Pleito Ranch (see Figure 2 below) and White Wolf fields. The conclusion of this evaluation was that inclination and azimuth with respect to lithologic bedding orientation contributed to borehole isotropic failure (i.e., failure to maintain proper borehole shape, increasing the likelihood of equipment failure) and/or total borehole failure. A reliable well plan involves a geomechanical risk evaluation first. Directional and horizontal drilling dictate limits to the build angles, shallow depths of kicking off angle, and overall complex geometry of a reliable usable wellbore. Formations, particularly those at very shallow depths or with certain unstable clay constituents (as commonly found in Kern County), have frequent wellbore collapse when drilled at oblique orientations to stresses.

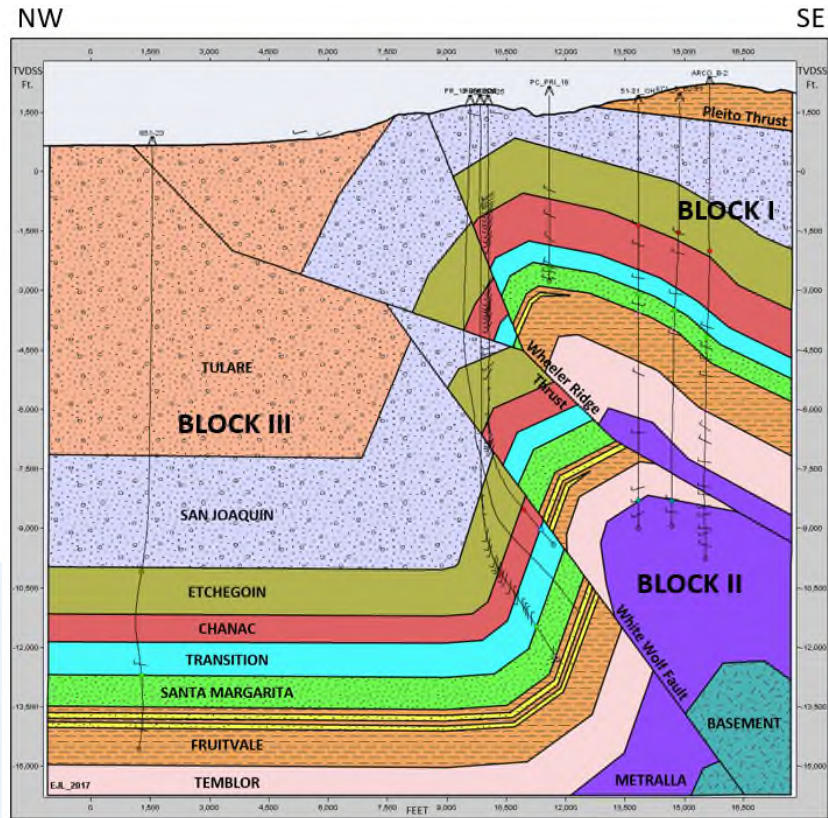


Fig. 2. Lithological cross section figure of Pleito Ranch field (Kern Co.)

Regards,

Alejandro Velasco
California Resources Corporation - Drilling Manager
900 Old River Road
Bakersfield, CA 93311

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60 Anabel Marquez, Committee for a Better Shafter,
Estela Escoto, Committee for a Better Arvin

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14 de diciembre de 2020

Vía correo electrónico

Junta de Supervisores del Condado de Kern
 Oficina Administrativa del Condado de Kern
 1115 Avenida Truxtun, Quinto Piso
 Bakersfield, CA 93301
 Supervisor Mick Gleason (district1@kerncounty.com)
 Supervisor Zack Scrivner (district2@kerncounty.com)
 Supervisor Mike Maggard (district3@kerncounty.com)
 Supervisor David Couch (district4@kerncounty.com)
 Supervisora Leticia Pérez (district5@kerncounty.com)

Comisión de Planificación del Condado de Kern
 Departamento de Planificación y Recursos Naturales del Condado de Kern
 2700 "M" Street, Suite 100, Bakersfield, CA 93301
 planning@kerncounty.com

*Sobre: Informe de Impacto Ambiental Suplementario Recirculado Borrador (octubre de 2020)
 para Revisiones al Título 19-Ordenanza de Zonificación del Condado de Kern 2020 (A),
 Centrado en la Concesión Local de Permisos de Petróleo y Gas (SCH # 2013081079)*

A la Junta de Supervisores y la Comisión de Planificación del Condado de Kern:

El Comité para un Mejor Shafter (CBS, por sus siglas en inglés) y el Comité para un Mejor Arvin (CBA, por sus siglas en inglés) presentan respetuosamente esta carta en referencia a las "Revisiones al Título 19-Ordenanza de Zonificación del Condado de Kern (2020-A), Centradas en la Concesión Local de Permisos de Petróleo y Gas" (Ordenanza) propuestas por el condado de Kern. Nos oponemos a esta Ordenanza porque aceleraría la autorización de más de 67,000 nuevos pozos de petróleo y gas en el condado de Kern durante las próximas décadas, lo que contaminará aún más nuestras comunidades ya contaminadas. Le instamos a rechazar esta Ordenanza para proteger la salud de nuestros niños.

CBS y CBA son grupos comunitarios de residentes de las áreas de Arvin y Shafter. La misión de CBS es abogar por la salud ambiental, apoyar el desarrollo de empleos económica y ambientalmente sostenibles, desarrollar y promover proyectos de jardines comunitarios y apoyar programas de desarrollo comunitario en Shafter y el sur del Valle de San Joaquín (Valle). La misión de CBA es trabajar para lograr la justicia ambiental y convertirse en líderes en nuestra comunidad para proteger la calidad del agua, del aire y del suelo para un Arvin mejor y un Valle más saludable.

Primero, le solicitamos que tome medidas inmediatas para que este proceso público sea accesible en español para que todas las comunidades de Kern puedan participar. Los materiales y las reuniones deben estar disponibles en español porque los miembros de la comunidad latinx, incluidos muchos hispanohablantes, viven desproporcionadamente cerca de las operaciones de

0060-1

0060-2

0060-3

petróleo y gas. Actualmente, hay aproximadamente 300 pozos de petróleo y gas activos e inactivos en el área de Shafter, y hay aproximadamente 80 pozos en el área de Arvin.¹ Una parte significativa de los hogares de Shafter y Arvin hablan español, donde muchos hogares tienen una capacidad limitada para hablar inglés.² Shafter y Arvin son solo dos de las muchas comunidades de bajos ingresos y comunidades de color que ya están sobrecargadas por la contaminación de las operaciones de petróleo y gas. Nosotros y otros residentes de habla hispana del condado de Kern merecemos una oportunidad razonable para brindar una aportación significativa sobre una decisión que nos afectará de manera desproporcionada.

Sin embargo, nos decepcionó enormemente ver que el personal del Condado prohibió explícitamente al público compartir comentarios verbales durante los talleres públicos que se celebraron este año, y dio instrucciones al público a que solo hiciera preguntas por escrito a través de una plataforma en línea.³ Aunque el Condado proporcionó una línea telefónica en español para los talleres, se les indicó a los oyentes que no hicieran preguntas o comentarios por teléfono.⁴ Algunos residentes de Shafter y Arvin pudieron acceder a la plataforma en línea con la asistencia técnica del Centro en Raza, Pobreza y el Medio Ambiente. Sin embargo, se ignoraron la mayoría de nuestras preguntas sobre cómo esta Ordenanza afectará la calidad del aire y la calidad del agua del condado de Kern.⁵ En cambio, el Condado trató nuestras preguntas como comentarios que solo abordará en la respuesta a los comentarios que publicará solo al final del proceso de revisión ambiental.

En efecto, los hispanohablantes como nosotros (y otros miembros del público) nos vimos obligados a pasar por un proceso complicado para simplemente poder hacer preguntas durante estos llamados talleres. Además, el Condado no hizo ningún esfuerzo por responder a nuestras preguntas sobre cómo la Ordenanza afectará el medio ambiente y nuestras vidas. Más importante aún, a pesar de nuestras repetidas solicitudes para que el Condado proporcione notificaciones y secciones de los dos Informe de Impacto Ambiental Suplementario Recirculado (SREIR en inglés) borrador en español, el Condado se ha negado a hacerlo porque no están obligados a hacerlo según el proceso de la Ley de Calidad Ambiental de California.⁶ El proceso público del Condado para los SREIR borrador no ha permitido una participación pública significativa por parte de los residentes de habla hispana.

Por consiguiente, el Condado puede y debe tomar las siguientes medidas para permitir que los residentes de habla hispana participen de manera significativa en el proceso público de la Ordenanza propuesta:

¹ FracTracker Alliance, Recommendations for an EIR to Prioritize Kern County Frontline Communities (September 16, 2020), <https://www.fractracker.org/2020/09/kern-eir-ej/>.

² Id.

³ See Attachment A. August Draft SREIR Teams Live Event Virtual Workshop Instructions (August 17, 2020) at 2 (“During the virtual Workshop, questions can be submitted via the Q&A tab [] on the “Right Pane” of the Presentation Screen. No verbal comments will be accepted during the virtual Workshop.”).

⁴ Attachment A at 1 (“Live Interpretation will only be available for Staff’s Presentation, no verbal comments will be received during the event, therefore, the Live Interpreter will not have the ability to translate questions or comments from Attendees.”).

⁵ See Attachment B. Questions from Community Members (August 17, 2020).

⁶ October Draft SREIR (October 2020) Workshop (November 10, 2020), https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/OilGas_SREIR_111020Workshop_Video.mp4.

- Volver a emitir y volver a publicar el aviso de disponibilidad del SREIR borrador de octubre en español y prorrogar la fecha límite para comentarios públicos para que los hispanohablantes tengan tiempo suficiente para proporcionar comentarios después de la notificación y la publicación de materiales en español;
- Traducir al español todas las demás notificaciones actuales y futuras relacionadas con la Ordenanza, incluidas las notificaciones de reuniones o audiencias públicas y notificaciones de determinación (si corresponde);
- Traducir al español y publicar, como mínimo, el resumen ejecutivo, la descripción del proyecto y las secciones sobre calidad del aire, calidad del agua (capítulos “hidrología y calidad del agua” y “servicios públicos y sistemas de servicios”), los impactos acumulativos y alternativas al SREIR borrador de octubre—que, junto con cualquier otra sección traducida, deben publicarse al menos 45 días antes del cierre de un período de comentario público prorrogado;
- Proporcionar interpretación bidireccional simultánea para reuniones públicas y audiencias;
- Aceptar, considerar, incluir en el registro y responder a comentarios verbales y escritos, tanto en español como en inglés; y
- Traducir al español cualquier conclusión o declaración de consideraciones primordiales adoptadas por la Junta de Supervisores (si corresponde).

0060-5

También instamos por separado a la Comisión de Planificación y a la Junta de Supervisores a rechazar esta Ordenanza. Fundamentalmente, la Ordenanza socava la buena toma de decisiones de gobierno y la transparencia pública al intentar dar luz verde a decenas de miles de nuevos pozos de petróleo y gas—y toda la infraestructura relacionada—sobre la base de una revisión de alto nivel e inadecuada.

0060-6

La Ordenanza propuesta también amenaza con empeorar la calidad del aire. A pesar de que los residentes del condado de Kern ya respiran una de las peores calidades de aire del país, la Ordenanza y el SREIR borrador tienen como objetivo hacer más rápido y más fácil el inicio de nuevas perforaciones, lo que amenaza con una mayor contaminación tóxica del aire que exacerbaría los daños existentes para la salud.

0060-7

Además, la Ordenanza expondría aún más a las familias del condado de Kern al agua no apta para consumo. El SREIR borrador propone alentar a los operadores de petróleo y gas a reutilizar sus aguas residuales para riego y uso doméstico, lo que también amenaza con mayores riesgos para la salud al obligar a las familias a consumir agua y alimentos contaminados.

0060-8

En lugar de perpetuar y profundizar los peligros existentes para la salud que plantea la industria del petróleo y el gas, el Condado debería rechazar esta Ordenanza. Más bien, el condado debería instituir una zona de separación de 2,500 pies para proteger los hogares, las escuelas y otros lugares sensibles de la perforación cercana, y tomar otras medidas afirmativas para reducir los impactos dañinos de la perforación en las comunidades de Kern y el medio ambiente.

Gracias por su consideración de nuestros comentarios y la salud y seguridad de las comunidades de Kern.

Atentamente,

Anabel Márquez
Presidenta, Comité para un Shafter Mejor

Estela Escoto
Presidenta, Comité para un Arvin Mejor

cc:

Lorelei Oviatt, Directora, Departamento de Planificación y Recursos Naturales
(loreleio@kerncounty.com)
Cindi Hoover, Planificadora Principal, Departamento de Planificación y Recursos Naturales
(hooverc@kerncounty.com)
Kathleen Krause, Secretaria de la Junta de Supervisores (clerkofboard@kerncounty.com)
Lisa Halko, Abogada Principal, Departamento de Conservación
(lisa.halko@conservation.ca.gov)

Teams Live Event Virtual Workshop Instructions



Introduction: In compliance with the Governor's Executive Order, the California Department of Public Health's guidelines on gatherings regarding COVID-19, and Kern County Local Emergency Declaration, the Kern County Planning and Natural Resources Department, as Lead Agency, is conducting a virtual workshop to facilitate public participation on the Draft Supplemental Environmental Impact Report for Revisions to Title 19 - Kern County Zoning Ordinance (2020-A), for Oil and Gas Local Permitting.

If you are having trouble participating in the Microsoft Live Event, please email Julie Williams at williamsj@kerncounty.com

Meeting Date and Time: Monday August 17, 2020 at 1:30 pm PST

Link to join: <https://tinyurl.com/y53zxcoz>

Spanish Language Translation: Spanish language translation services will be provided in two ways.

Microsoft Live Events Closed Caption – Closed Captions are available in Spanish by clicking on the  at the bottom right of the Presentation Screen. To select Spanish language closed captioning click on the gear icon located next to the closed captioning icon as shown . The County of Kern cannot ensure the accuracy of translation through Microsoft's Live Event closed captioning service.

Live Interpretation via Conference Call – To listen to a Live Interpreter call (872) 240-3212, Access Code: 526-446-645. Attendees may need access to 2 devices to watch the Live Event and listen to the Live Interpretation. Live Interpretation will only be available for Staff's Presentation, no verbal comments will be received during the event, therefore, the Live Interpreter will not have the ability to translate questions or comments from Attendees.

Participating in the Virtual Scoping Meeting

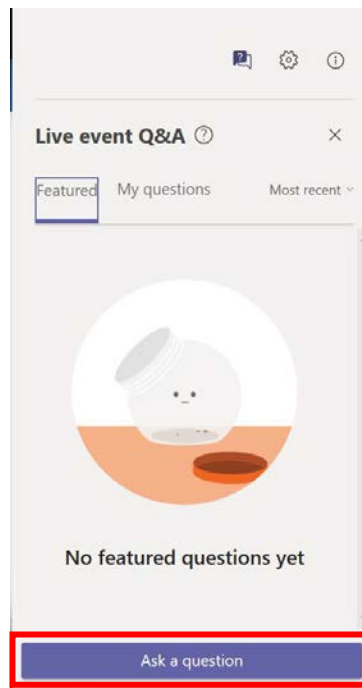
Participating: To join the Virtual Scoping Meeting paste the URL above into your web browser address bar. The URL will direct you to a Microsoft Teams Home Page that will give you the following 3 options: Download the Teams App; Sign-In using your Microsoft Log-In; Join Anonymously. Choose any of these options to join the meeting.

Please note the following:

- The time needed to download the Teams App may vary depending on a number of factors including your internet or data connection speed and the device memory capacity.
- If you have the Teams App already downloaded on your device the meeting will automatically open in your Teams App.
- If joining the meeting from a mobile device, Safari is not a supported browser. We recommend you use an internet connected computer for the best experience.
- For more information about supported browsers, device requirements and more, please visit the Microsoft Office article at the following link: <https://support.microsoft.com/en-us/office/attend-a-live-event-in-teams-a1c7b989-ebb1-4479-b750-c86c9bc98d84>



Commenting: Commenting on the Draft Supplemental Recirculated Environmental Impact Report can be accomplished by providing written comments to Cindi Hoover, Lead Planner, at hooverc@kerncounty.com or by mail at Kern County Planning and Natural Resources Department - 2700 "M" Street, Suite 100, Bakersfield, CA. 93301.

During the virtual Workshop, questions can be submitted via the Q&A tab (shown below) on the "Right Pane" of the Presentation Screen. No verbal comments will be accepted during the virtual Workshop.



FAQs

Q: I don't see the "Ask a Question" Button on the Presentation Screen, how do I ask a question?

A: The "Right Pane" where the Q&A panel is located may not be available in full screen viewing mode. To change from full screen viewing mode press either the Esc key or the minimize arrows  at the bottom right corner. Next click on the Q&A icon  at the top of the "Right Pane". The Q&A Panel should now open.

Q: Is there a limit to how long my question can be using the Q&A Panel?

A: Yes, a maximum of 2,400 characters per question are allowed by Microsoft.

Q: Are questions and comments anonymous?

A: Questions may be submitted anonymously or you may provide your name to show with the question. For more information on using the Q&A tool please visit the Microsoft Teams Support website.

Q: I keep getting a prompt to download the Microsoft Teams App, do I need to download the App?

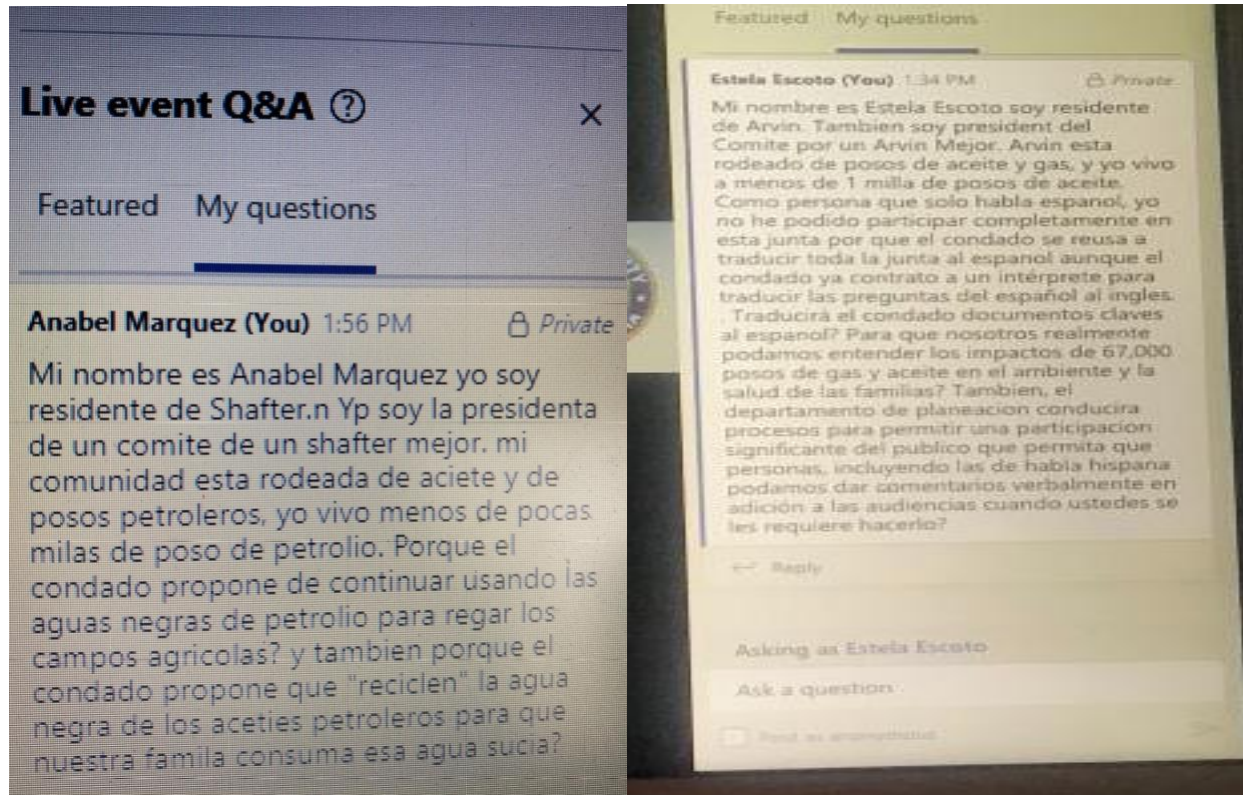
A: If you are using a supported web browser such as Chrome, Firefox, or Edge you do not need to download the Microsoft Teams App. Please see the Microsoft Live Events support article at the link above for information about supported browsers, and device requirements.

Q: If I already have the Microsoft Teams App downloaded on my device, will the virtual Scoping Meeting Live Event open in my app?

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Q: How can I provide verbal comments for the record?

A: Verbal comments on the project can only be accepted during the Planning Commission and Board of Supervisors hearings. If you wish to provide comments on the Draft Supplemental Recirculated EIR during the document comment period you may submit those in writing to Cindi Hoover, Lead Planner, at hooverc@kerncounty.com or by mail to Kern County Planning & Natural Resources Department - 2700 "M" Street, Suite 100, Bakersfield, CA 93301.

Anexo B: Preguntas de miembros de la comunidad (17 de agosto 2020).

December 14, 2020

Via email

Kern County Board of Supervisors
 Kern County Administrative Office
 1115 Truxtun Avenue, Fifth Floor
 Bakersfield, CA 93301
 Supervisor Mick Gleason (district1@kerncounty.com)
 Supervisor Zack Scrivner (district2@kerncounty.com)
 Supervisor Mike Maggard (district3@kerncounty.com)
 Supervisor David Couch (district4@kerncounty.com)
 Supervisor Leticia Pérez (district5@kerncounty.com)

Kern County Planning Commission
 Kern County Planning and Natural Resources Department
 2700 “M” Street, Suite 100, Bakersfield, CA 93301
 planning@kerncounty.com

Re: Supplemental Recirculated Environmental Impact Report Draft (October 2020) for Revisions to Title 19-Kern County Zoning Ordinance 2020 (A), Focused on Oil and Gas Local Permitting (SCH # 2013081079)

To the Kern County Board of Supervisors and Planning Commission:

The Committee for a Better Shafter (CBS) and the Committee for a Better Arvin (CBA) respectfully submit this letter in reference to the “Revisions to Title 19-Kern County Zoning Ordinance (2020-A), Focused on Oil and Gas Local Permitting” (Ordinance) proposed by Kern County. We oppose this Ordinance because it would accelerate the authorization of more than 67,000 new oil and gas wells in Kern County over the next few decades, further polluting our already polluted communities. We urge you to reject this Ordinance to protect our children's health.

CBS and CBA are community groups made up of residents of the Arvin and Shafter areas. CBS's mission is to advocate for environmental health, support economically and environmentally sustainable job development, develop and promote community garden projects, and support community development programs in Shafter and the southern San Joaquin Valley (Valley). CBA's mission is to work to achieve environmental justice, and to become a leader in our community to protect water, air and soil quality for a better Arvin and a healthier Valley.

Firstly, we ask that you take immediate action to make this public process accessible in Spanish, so that all Kern communities can participate. Materials and meetings should be available in Spanish because members of the Latinx community, including many Spanish-speakers, live disproportionately close to the oil and gas

operations. Currently, there are approximately 300 active and inactive oil and gas wells in the Shafter area, and approximately 80 wells in the Arvin area.¹ A significant portion of households in Shafter and Arvin speak Spanish, and many have limited English.² Shafter and Arvin are just two of the many low-income communities and communities of color that are already burdened by pollution from oil and gas operations. We and other Spanish-speaking residents of Kern County deserve a reasonable opportunity to meaningfully contribute to a decision that will disproportionately affect us.

However, we were extremely disappointed to see that County staff explicitly prohibited the public from sharing verbal comments during public workshops held this year, and instructed the public to only ask questions in writing through an online platform.³ Although the County provided a telephone line in Spanish for the workshops, listeners were instructed not to ask questions or make comments over the phone.⁴ Some residents of Shafter and Arvin were able to access the platform online with technical assistance from the Center on Race, Poverty and the Environment. However, most of our questions about how this Ordinance will affect air quality and water quality in Kern County were ignored.⁵ Instead, the County treated our questions as comments, which it will only address in the response to comments that it will publish at the end of the environmental review process.

In fact, Spanish speakers like us (and other members of the public) were forced to go through a complicated process just to be able to ask questions during these so-called workshops. Additionally, the County made no effort to answer our questions about how the Ordinance will affect the environment and our lives. More importantly, despite our repeated requests for the County to provide notifications and sections of the two draft Supplemental Recirculated Environmental Impact Reports (SREIRs) in Spanish, the County has refused to do so because it is not required under the California Environmental Quality Act.⁶ The County's public process for the draft SREIRs has not allowed for meaningful public participation by Spanish-speaking residents.

Accordingly, the County can and should take the following steps to allow Spanish-speaking residents to meaningfully participate in the public process of the proposed Ordinance:

¹ FracTracker Alliance, Recommendations for an EIR to Prioritize Kern County Frontline Communities (September 16, 2020), <https://www.fractracker.org/2020/09/kern-eir-ej/>.

² Id.

³ See Attachment A. August Draft SREIR Teams Live Event Virtual Workshop Instructions (August 17, 2020) at 2 (“During the virtual Workshop, questions can be submitted via the Q&A tab [] on the “Right Pane” of the Presentation Screen. No verbal comments will be accepted during the virtual Workshop.”).

⁴ Attachment A at 1 (“Live Interpretation will only be available for Staff’s Presentation, no verbal comments will be received during the event, therefore, the Live Interpreter will not have the ability to translate questions or comments from Attendees.”).

⁵ See Attachment B. Questions from Community Members (August 17, 2020).

⁶ October Draft SREIR (October 2020) Workshop (November 10, 2020), https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/OilGas_SREIR_111020Workshop_Video.mp4.

- Reissue and republish the October draft SREIR availability notification in Spanish, and extend the deadline for public comment so that Spanish speakers have enough time to provide comments after notification and publication of materials in Spanish;
- Translate all other current and future notifications related to the Ordinance into Spanish, including notifications of public meetings or hearings and notices of determination (if applicable);
- Translate into Spanish and publish, as a minimum, the executive summary, the project description and the sections on air quality, water quality (chapters “hydrology and water quality” and “utilities and service systems”), the cumulative impacts and alternatives to the October draft SREIR — which, along with any other translated sections, should be published at least 45 days prior to the close of an extended public comment period;
- Provide simultaneous two-way interpretation for public meetings and hearings;
- Accept, consider, include in the record and respond to verbal and written comments, both in Spanish and English; and
- Translate any conclusions or declarations of primary considerations adopted by the Board of Supervisors into Spanish (if applicable).

We also urge the Planning Commission and the Board of Supervisors to reject this Ordinance. Essentially, the Ordinance undermines good government decision-making and public transparency by attempting to greenlight tens of thousands of new oil and gas wells — and all the related infrastructure — based on an inadequate high-level review.

The proposed Ordinance also threatens to worsen air quality. Despite the fact that Kern County residents already breathe some of the worst air in the country, the Ordinance and draft SREIR aim to make it faster and easier to start new drilling, which threatens further toxic air pollution that would exacerbate existing damage to health.

Additionally, the Ordinance would further expose Kern County families to unsafe drinking water. The draft SREIR proposes encouraging oil and gas operators to reuse their wastewater for irrigation and domestic use, which also poses the threat of greater health risks by forcing families to consume contaminated food and water.

Rather than perpetuate and deepen the existing health hazards posed by the oil and gas industry, the County should reject this Ordinance. Instead, the County should institute a 2,500-foot buffer zone to protect homes, schools, and other sensitive locations from nearby drilling, and take other affirmative measures to reduce the damaging impacts of drilling on Kern communities and the environment.

Thank you for considering our comments and the health and safety of Kern communities.

Yours sincerely,

Anabel Marquez
President, Committee for a Better Shafter

Estela Escoto
President, Committee for a Better Arvin

cc:

Lorelei Oviatt, Director, Planning and Natural Resources Department
(loreleio@kerncounty.com)
Cindi Hoover, Lead Planner, Planning and Natural Resources Department
(hooverc@kerncounty.com)
Kathleen Krause, Clerk of the Board of Supervisors (clerkofboard@kerncounty.com)
Lisa Halko, Chief Counsel, Department of Conservation
(lisa.halko@conservation.ca.gov)

Annex A. Instructions from the live virtual workshop in teams on the SREIR draft from August (August 17, 2020)

Teams Live Event Virtual Workshop Instructions



Introduction: In compliance with the Governor's Executive Order, the California Department of Public Health's guidelines on gatherings regarding COVID-19, and Kern County Local Emergency Declaration, the Kern County Planning and Natural Resources Department, as Lead Agency, is conducting a virtual workshop to facilitate public participation on the Draft Supplemental Environmental Impact Report for Revisions to Title 19 - Kern County Zoning Ordinance (2020-A), for Oil and Gas Local Permitting.

If you are having trouble participating in the Microsoft Live Event, please email Julie Williams at williamsj@kerncounty.com

Meeting Date and Time: Monday August 17, 2020 at 1:30 pm PST

Link to join: <https://tinyurl.com/y53zxcoz>

Spanish Language Translation: Spanish language translation services will be provided in two ways.

Microsoft Live Events Closed Caption – Closed Captions are available in Spanish by clicking on the  at the bottom right of the Presentation Screen. To select Spanish language closed captioning click on the gear icon located next to the closed captioning icon as shown . The County of Kern cannot ensure the accuracy of translation through Microsoft's Live Event closed captioning service.

Live Interpretation via Conference Call – To listen to a Live Interpreter call (872) 240-3212, Access Code: 526-446-645. Attendees may need access to 2 devices to watch the Live Event and listen to the Live Interpretation. Live Interpretation will only be available for Staff's Presentation, no verbal comments will be received during the event, therefore, the Live Interpreter will not have the ability to translate questions or comments from Attendees.

Participating in the Virtual Scoping Meeting

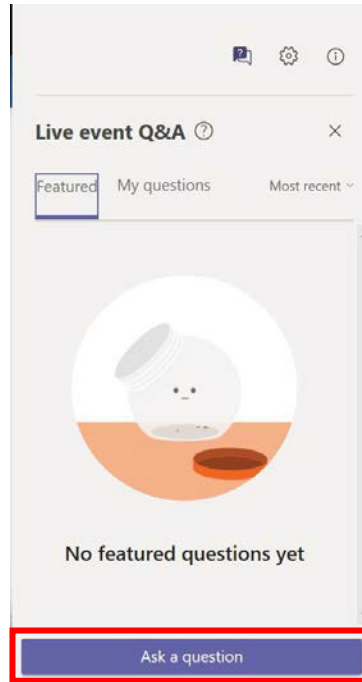
Participating: To join the Virtual Scoping Meeting paste the URL above into your web browser address bar. The URL will direct you to a Microsoft Teams Home Page that will give you the following 3 options: Download the Teams App; Sign-In using your Microsoft Log-In; Join Anonymously. Choose any of these options to join the meeting.

Please note the following:

- The time needed to download the Teams App may vary depending on a number of factors including your internet or data connection speed and the device memory capacity.
- If you have the Teams App already downloaded on your device the meeting will automatically open in your Teams App.
- If joining the meeting from a mobile device, Safari is not a supported browser. We recommend you use an internet connected computer for the best experience.
- For more information about supported browsers, device requirements and more, please visit the Microsoft Office article at the following link: <https://support.microsoft.com/en-us/office/attend-a-live-event-in-teams-a1c7b989-ebb1-4479-b750-c86c9bc98d84>



Commenting: Commenting on the Draft Supplemental Recirculated Environmental Impact Report can be accomplished by providing written comments to Cindi Hoover, Lead Planner, at hooverc@kerncounty.com or by mail at Kern County Planning and Natural Resources Department - 2700 "M" Street, Suite 100, Bakersfield, CA. 93301.

During the virtual Workshop, questions can be submitted via the Q&A tab (shown below) on the "Right Pane" of the Presentation Screen. No verbal comments will be accepted during the virtual Workshop.



FAQs

Q: I don't see the "Ask a Question" Button on the Presentation Screen, how do I ask a question?

A: The "Right Pane" where the Q&A panel is located may not be available in full screen viewing mode. To change from full screen viewing mode press either the Esc key or the minimize arrows at the bottom  right corner. Next click on the Q&A icon  at the top of the "Right Pane". The Q&A Panel should now open.

Q: Is there a limit to how long my question can be using the Q&A Panel?

A: Yes, a maximum of 2,400 characters per question are allowed by Microsoft. Q: Are questions and comments anonymous?

A: Questions may be submitted anonymously or you may provide your name to show with the question. For more information on using the Q&A tool please visit the Microsoft Teams Support website.

Q: I keep getting a prompt to download the Microsoft Teams App, do I need to download the App?

A: If you are using a supported web browser such as Chrome, Firefox, or Edge you do not need to download the Microsoft Teams App. Please see the Microsoft Live Events support article at the link above for information about supported browsers, and device requirements.

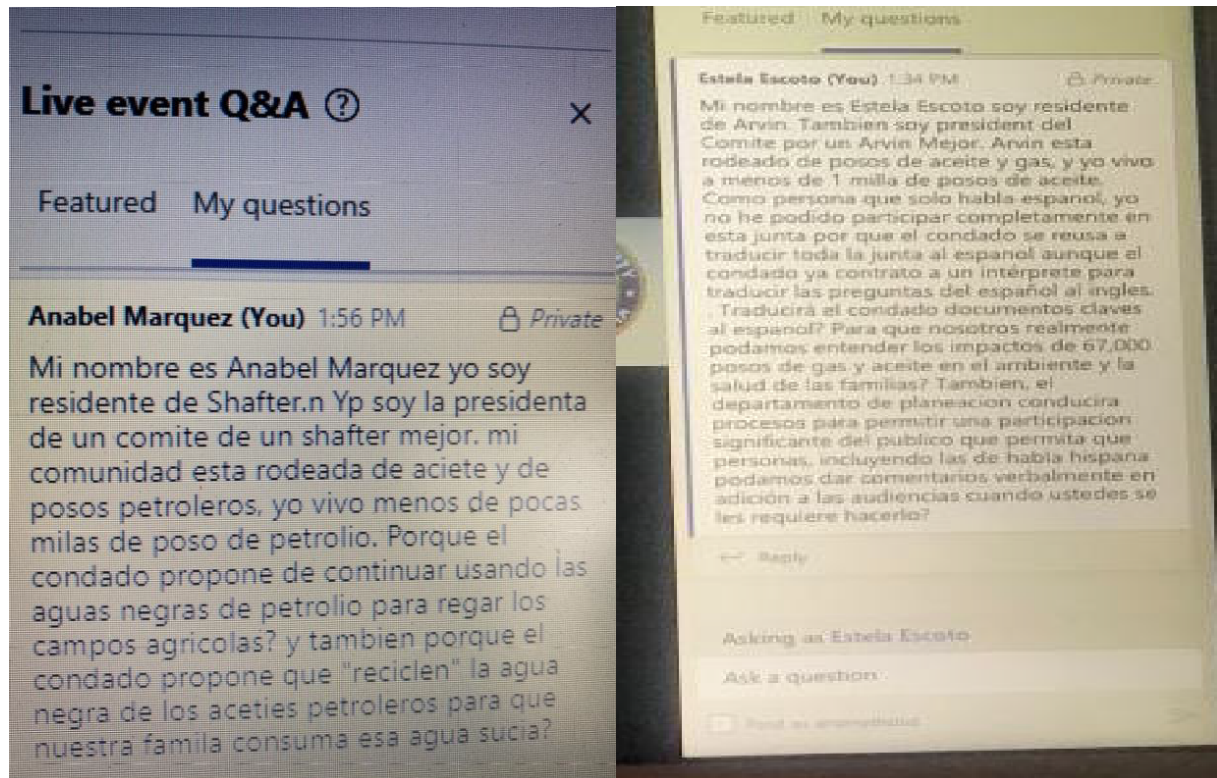
Q: If I already have the Microsoft Teams App downloaded on my device, will the virtual Scoping Meeting Live Event open in my app?

A: Yes, if you have the app the event will open in your Teams App. Be sure you are using the Q&A panel in the "Right Pane" to ask questions or submit your name for the record and not the Teams Chat feature on the left of the screen.

Q: How can I provide verbal comments for the record?

A: Verbal comments on the project can only be accepted during the Planning Commission and Board of Supervisors hearings. If you wish to provide comments on the Draft Supplemental Recirculated EIR during the document comment period you may submit those in writing to Cindi Hoover, Lead Planner, at hooverc@kerncounty.com or by mail to Kern County Planning & Natural Resources Department - 2700 "M" Street, Suite 100, Bakersfield, CA 93301.

Annex B: Questions from community members (August 17, 2020)



0060-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted as opposition to the Project and will be considered by County decisionmakers at public hearings for consideration of the adoption of the revisions to Title 19 – Kern County Zoning Ordinance.

0060-2

The comment is introductory and does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0060-3

This comment requests that the County make the public process accessible in Spanish.

Please see Global Response (GR) 3 – Public Process and Responses to Comments 0007-2, 0007-4, and 0009-2. To foster public participation in the SREIR’s preparation process among Spanish-speaking residents, Spanish translation services were offered at the May 13, 2020, scoping meeting; the August 17, 2020, public workshop on the SREIR (August 2020); and the November 10, 2020, public workshop on the SREIR (October 2020). Please see GR-3 – Public Process and Response to Comment 0010-2. The SREIR’s public participation process ensured that Spanish-speaking residents were afforded the opportunity to review and submit public comments on the SREIR (August 2020 and October 2020).

The comment also states that members of the Latinx community are disproportionately impacted by oil and gas activities. The SREIR (October 2020) discusses an analysis of Kern County census tract data that demonstrates that activities permitted under the Ordinance do not appear to be spatially distributed in a manner that could result in disparate impacts based on race or other characteristics listed in California Government Code § 11135. Please see SREIR (October 2020), Vol. 1, at 6-39–43; GR-4 – Environmental Justice; and Responses to Comments 0010-3, 0010-4, and 0010-5.

0060-4

The comment states that County staff limited public participation to written comments.

Spanish translation services were provided at the virtual scoping meeting and at virtual public workshops on the SREIR (August 2020) and SREIR (October 2020) using both closed captions and live interpretation. The public workshops allowed participants to submit written comments via the teleconference platform’s chat function. The teleconference platform did not accept any oral comments in any language. Public comments received at the August 17, 2020, public workshop that were submitted in Spanish via the teleconference platform were translated into English, considered, and included in the record.

The comment also states that Spanish translations of notifications and sections of the SREIR were not provided by the County. Neither CEQA nor the CEQA Guidelines require lead agencies to translate public notices or environmental review documents into Spanish or any other language. The California Legislature has recognized that statutory changes would be necessary to add a translation mandate to CEQA, and there have been several unsuccessful bills attempting to require translation of CEQA documents. California case law also does not support a requirement to translate documents into Spanish or another language. Please see Response to Comment 0010-2. Requests for Spanish translation of the Project’s CEQA documents were addressed by the Court of Appeal, which held that neither public notices nor the 2015 FEIR’s executive summary were required to be translated into Spanish, nor was the provision of Spanish-language interpreters at public meetings related to the 2015 FEIR required. *King & Gardiner Farms, LLC v. County of Kern* (2020) Case No. F077656, Slip Opinion, (Cal. Ct. App. 5th Dist. Feb. 25, 2020), at p. 122–126. For a discussion of the efforts to ensure public participation opportunities for Spanish-speaking residents, please see Responses to Comment 0009-9 and 0010-2.

The comment also requests that the SREIR (October 2020) availability notification be reissued and republished in Spanish and the deadline for public comment extended; current and future notifications related to the Ordinance be translated into Spanish; the SREIR’s executive summary, project description, and sections on air quality, water quality, cumulative impacts, and alternatives to the Project be translated; simultaneous two-way interpretation for public meetings and hearings be provided; verbal and written comments, both in Spanish and English, be accepted, considered, included in the record, and responded to; and any conclusions or declarations of primary considerations adopted by the Board of Supervisors be translated into Spanish (if applicable). The County is not required to translate the Project’s environmental documents into Spanish or to provide translation services at public meetings. However, the County offered Spanish translation services at the

scoping meeting and public workshops for the SREIR (August 2020 and October 2020), providing Spanish-speaking residents a meaningful opportunity to participate in the public process. Please see Response to Comment 0060-3.

0060-5

The comment expresses general opposition to the Project.

Please see GR-1 – Beyond the Scope of the SREIR and Responses to Comments 0060-1 and 0007-7. The SREIR's project-level review of the Amended Zoning Ordinance and future development pursuant to the Ordinance informs the policy decisions reflected in the Ordinance and allows the County to identify performance standards and mitigation measures that most effectively and efficiently address both the large scale and localized effects of oil and gas development. Please see SREIR (October 2020), Vol. 5, Section 7.2.1, at 7-100 (2015 FEIR GR-2 – Project vs. Program EIR) and Responses to Comments 0009-98, 0009-104, 009-112, and 0039-2.

0060-6

The comment states that the proposed Ordinance will worsen air quality by facilitating new drilling.

The SREIR includes a full analysis of Project emissions. See SREIR (October 2020), Vol. 1, at 4.3-93–137. Emissions resulting from Project implementation will be reduced to a level of no net increase with implementation of MM 4.3-1 through MM 4.3-4 and MM 4.3-8. MM 4.3-8 requires applicants to pay an air emission mitigation fee under the Oil and Gas Emission Reduction Agreement between Kern County and the San Joaquin Valley Air Pollution Control District or, alternatively, to undertake direct emission reductions to fully offset emission increases from the Project. See SREIR (October 2020), Vol. 1, at 4.3-164–165; see Responses to Comments 0009-4 and 0009-16.

0060-7

The comment states that the proposed Ordinance would further expose families to unsafe drinking water by encouraging oil and gas operators to reuse their wastewater for irrigation and domestic use.

Potential Project impacts to water quality are primarily discussed in SREIR Section 4.9, Hydrology and Water Quality. The SREIR (August 2020) discusses foreseeable and significant impacts to water quality, including impacts from produced water reuse for agricultural irrigation, and the SREIR (October 2020) has been updated to include a detailed discussion of the regulation, monitoring, and continued scientific investigation of produced water reuse for agricultural irrigation. No studies have yet shown that irrigating food crops with produced water poses any threat to public health. See SREIR (October 2020), Vol. 1, at 4.9-153–156; see Response to Comment 0009-48.

0060-8

This comment requests that a 2,500-foot setback be instituted.

Please see Responses to Comments 0009-58 through 0009-62, 0009-68, 0009-78, and 0009-79. The SREIR (October 2020) has been updated to explain why a 2,500-foot setback requirement would not reduce or eliminate any significant adverse environmental impacts more than the Project would, given that the Project's mitigation measures ensure adequately protective setbacks for all wells in proximity to sensitive receptors. See SREIR (October 2020), Vol. 1, at 6-36–42. This updated discussion also explains that the 2,500-foot setback requirement could in fact result in higher criteria air pollutant and greenhouse gas emissions due to the fact that more horizontal drilling may occur. Please see Response to Comment 0009-60.

0060-9

This comment is an attachment providing the instructions for the virtual workshop and is referenced in Comment 0060-4. Please see Response to Comment 0060-4. This comment is noted and will be considered by County decisionmakers.

0060-10

This comment is an attachment providing the screenshots of comments made during the virtual workshop and is referenced in Comment 0060-4. This comment is noted and will be considered by County decisionmakers.

Please see Response to Comment 0060-4.

61 EarthJustice, et al.

Comment Support Materials provided in electronic file [[Volume 1A_Comment 0061 EarthJustice References.pdf](#)].

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December 14, 2020

Via Email and Federal Express

Kern County Planning and Natural Resources Department
 Attn: Cindi Hoover, Lead Planner
 2700 “M” Street, Suite 100
 Bakersfield, CA 93301
hooverc@kerncounty.com
planning@kerncounty.com

Re: Comments on the Draft Supplemental Recirculated Environmental Impact Report (October 2020) for Revisions to Title 19-Kern County Zoning Ordinance (2020-A) Focused on Oil and Gas Local Permitting (SCH # 2013081079)

Dear Ms. Hoover:

On behalf of Center for Biological Diversity, Center on Race, Poverty & the Environment, Comité Progreso de Lamont, Committee for a Better Arvin, Committee for a Better Shafter, Delano Guardians, Earthjustice, Greenfield Walking Group, Natural Resources Defense Council, and Sierra Club, we are writing to submit the following comments regarding the October 30, 2020 Draft Supplemental Recirculated Environmental Impact Report (the October Draft SREIR) for “Revisions to Title 19-Kern County Zoning Ordinance (2020-A) Focused on Oil and Gas Local Permitting” (the Ordinance). These comments are offered to ensure that Kern County (the County)’s consideration of the Ordinance complies with the California Environmental Quality Act (CEQA)¹ and CEQA Guidelines.²

These comments build upon previous comments we submitted on September 16, 2020 (the September 16 Letter) and October 2, 2020 (the October 2 Letter) in response to the August 3, 2020 Draft Supplemental Recirculated Environmental Impact Report (the August Draft SREIR). Many of the comments contained in the September 16 Letter and October 2 Letter remain relevant to the revised October Draft SREIR, and we incorporate those letters herein. We expect the County will respond to both the September 16 Letter and the October 2 Letter as well as these comments because the October Draft SREIR states: “Responses to comments made on the initial draft SREIR (August 2020), as well as this second Draft SREIR (October 2020), will be provided in a single comprehensive Response to Comments document (Chapter 7) as part of the Final SREIR for consideration by the Planning Commission and Board of Supervisors.” October Draft SREIR at 1-8, 2-3.

¹ Pub. Resources Code, § 21000 *et seq.*

² Cal. Code Regs., tit. 14, § 15000 *et seq.*

Because the County's approach to the Ordinance has not materially changed, our basic requests remain the same. As in our previous letters, we urge the County to abandon the approach that the Ordinance takes to permitting oil and gas wells in the County. The Ordinance undermines sound government decision making and public transparency by proposing to greenlight tens of thousands of new oil and gas wells—and all associated infrastructure—on the basis of one high-level and inadequate review. As with previous iterations of the County's environmental reviews, the revised October Draft SREIR wholly neglects to analyze or mitigate the site-specific impacts of oil and gas development in the County, and yet the Ordinance would deprive community members of any future notice or opportunity to comment when site-specific permits are issued. Rather than blindly fast-tracking more harmful oil and gas development, the County should adopt measures that improve health and safety protections for local communities already threatened by oil and gas operations, and pave the way for a just transition to a more secure and sustainable economic base for the County.

We also continue to urge the County to conduct a genuinely inclusive public process for the Ordinance, which should allow for the County's many Spanish speakers to participate meaningfully. Given the magnitude of the industrial activities authorized by the Ordinance and the threat that these activities pose to community members' health—particularly in the midst of the COVID-19 pandemic—the County's already overburdened and most vulnerable residents deserve a reasonable opportunity to provide input on a decision that will disproportionately affect them.

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I. The County Must Disclose Information About the Ordinance and Its Environmental Impacts in Spanish and Promote Other Ways to Ensure the Meaningful Involvement of Spanish-Speaking Residents Who Are Disproportionately Harmed by Oil and Gas Activities.

As we discussed in our September 16 and October 2 letters, the County's public process for the draft SREIRs has not afforded meaningful public participation opportunities to Spanish-speaking and Latinx residents who are disproportionately harmed by oil and gas activities and will be impacted by this Ordinance. Despite our repeated requests for the County to provide notices and sections of the two draft SREIRs in Spanish, the County has refused to do so.³ We request again that the County translate into Spanish notices and sections of the October Draft SREIR and recirculate the report in order to meet its obligation to make a good faith effort to disclose the significant environmental and health impacts of this Ordinance on the residents of Kern County.

II. The County's Attempt to Subvert CEQA and Foreclose Site-Specific Review Fails Because the Ordinance and October Draft SREIR Do Not Establish a Ministerial Permitting Scheme.

For years now, Commenters have advised the County that it cannot legally or credibly dispose of the entire oil and gas industry's county-wide CEQA obligations in one environmental impact report that purports to describe and prescribe mitigation measures for tens of thousands of new oil and gas wells to be drilled in the next 20 or more years. As with the County's previous analyses of the impacts of the Ordinance, the October Draft SREIR does not contain the detailed, site-specific analysis that is required for a "project-level" EIR that might properly preclude CEQA analyses for future permits. As such, the October Draft SREIR fails in its basic purpose as a useful informational document for the public and decision makers.

Not only is the October Draft SREIR insufficiently site-specific to be relied upon for project-level approvals, the proposed Ordinance and Draft October SREIR still do not establish a purely ministerial process for authorizing future oil and gas activities in the County. Commenters addressed this issue in our September 16 Letter,⁴ and no changes have been made to notable mitigation measures that require the County to exercise discretion—i.e., Mitigation Measures 4.3-5, 4.4-14(I), 4.6-5, 4.8-6, and 4.8-8. These measures instituted by the October Draft SREIR remain open-ended and continue to lack the fixed standards or objective measurements that would be necessary to establish a ministerial permitting program.

³ Draft SREIR (Oct. 2020) Workshop (Nov. 10, 2020), https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/OilGas_SREIR_111020Workshop_Video.mp4.

⁴ September 16 Letter at 5-8.

III. The October Draft SREIR's Analysis and Mitigation of Air Quality Impacts is Inadequate.

It is critical that the County accurately analyze and fully mitigate air quality impacts because air quality directly affects the health and welfare of Kern County residents. Air quality is a particular concern for Kern County residents, who have long experienced some of the worst air quality in the country.⁵

As set forth in our September 16 Letter and the accompanying expert report of the same date from Petra Pless, D.Env., the August Draft SREIR did not adequately analyze or mitigate air quality impacts. In particular, the August Draft SREIR failed to disclose or address known deficiencies in Mitigation Measure 4.3-8, the County's primary mitigation measure for air quality impacts. Further, the August Draft SREIR neglected to adequately analyze or mitigate harmful emissions of fine particulate matter pollution (also called PM_{2.5}), as directed by the Fifth District Court of Appeal in its recent decision setting aside the 2015 Ordinance and 2015 Final EIR.

Unfortunately, the October Draft SREIR does not remedy these deficiencies, as discussed below and in the attached follow-up report from Petra Pless.

In fact, the October Draft SREIR reveals further analytical and mitigation failures by the County, as discussed in the attached follow-up expert report of Petra Pless, D.Env. (Addendum A) and the expert report of Phyllis Fox, PhD, PE (Addendum B)—both of which are fully incorporated into these comments. The County must respond to these comments specifically and in their entirety, including the attached follow-up Pless Report and Fox Report.

Critical deficiencies identified by the follow-up Pless Report and the Fox Report include:

- The October Draft SREIR fails to identify and mitigate significant criteria pollutant emissions from construction and operation of stationary sources subject to permitting by the San Joaquin Valley Air Pollution Control District.
- The October Draft SREIR neglects to require all feasible mitigation to reduce significant impacts during construction and operation of the project, including feasible mitigation to address Valley Fever.
- The October Draft SREIR fails to evaluate public health and other impacts of significant criteria pollutant emissions.

⁵ Am. Lung Assn., *State of the Air 2020*, pp. 20-22, 23-25, <http://www.stateoftheair.org/assets/SOTA-2020.pdf>.

- Offsets relied upon by the County and the October Draft SREIR will not actually mitigate air quality impacts in Kern County.

A. The October Draft SREIR Fails To Disclose or Address Known Deficiencies in Mitigation Measure 4.3-8 and the OG-ERA.

Mitigation Measure 4.3-8 purports to offset so-called “non-permitted” air pollution emissions authorized by the Ordinance in two ways. First, under an “Oil and Gas Emission Reduction Agreement” or “OG-ERA” that the County and San Joaquin Valley Air Pollution Control District (“Air District”) entered into on August 18, 2016, individual well operators may pay a fee to be used by the Air District to fund pollution-reducing activities within the Air District’s eight-county jurisdiction. October Draft SREIR at 4.3-130 to 4.3-131; *see also generally id.*, Appendix C (OG-ERA). Alternatively, an individual well operator may implement its own emission reduction project subject to oversight by the Air District under the OG-ERA. *Id.* at 4.3-131.

The October Draft SREIR assures the public and decision makers that, under Mitigation Measure 4.3-8, “[e]mission reductions funded by the OG-ERA mitigation fees will offset the impacts from the new oil and gas activities resulting in a ‘no net increase’ to contributions of designated criteria air emissions in the entire air basin.” *Id.* at 4.3-135; *accord id.* at 4.3-130 (“emissions . . . shall be mitigated to a level of no net increase”), 4.3-143 (OG-ERA “will reduce the air emissions as close to a ‘no net increase’ . . . over the next 21 years as is scientifically possible to quantify and confirm”), 4.3-133 (“Applicants paying the OG-ERA fee are thus fully mitigating for all Project emissions”). However, the October Draft SREIR does not provide any analysis or evidence to support this conclusion, nor is Mitigation Measure 4.3-8 designed to achieve this outcome or enforceable.

1. The October Draft SREIR Fails to Disclose Whether Sufficient Pollution-Reducing Opportunities Exist to Effectuate Mitigation Measure 4.3-8.

As an initial matter, as Commenters have pointed out previously, the County’s assertion that Mitigation Measure 4.3-8 will reduce emissions authorized by the Ordinance “to net zero” for the next two decades or longer is not supported by any evidence at all, let alone substantial evidence. Mitigation Measure 4.3-8 is premised on the assumption that air pollution reductions can be obtained from other sources within the Air District’s jurisdiction in sufficient quantities to compensate for pollution increases from the Ordinance. But the October Draft SREIR does not bother to analyze whether adequate pollution-reducing opportunities exist in the San Joaquin Valley through 2035 to counteract the enormous volume of unhealthy air pollution the Ordinance will generate.

Rather than conduct a simple analysis using readily available data from the Air District (i.e., the emissions inventory the County presumably relied upon to estimate the Ordinance’s share of emissions relative to all other sources in the County and San Joaquin Valley, *see*

October Draft SREIR at 4.3-47, 4.3-164), the October Draft SREIR continues to offer excuses for its failure to conduct any meaningful analysis. It states:

It is not feasible at this time to identify and commit to specific projects to provide the reductions needed under the OG-ERA in each year through 2035. It is anticipated that new types of reduction projects will become available as technologies develop over time, and the flexibility of the OGERA allows for the mitigation fees to be spent on the most effective emission reduction projects available at the time the fees are received to ensure that emission reductions are achieved for all oil and gas activity over the next two decades.

Id. at 4.3-135.

This excerpt from the October Draft SREIR distorts Commenters' previous comments and is non-responsive. Commenters are not asking the County to "identify and commit to specific" pollution-reducing projects now, upfront. Rather, it is a far more basic and fundamental analysis that is required: since the County's mitigation measure relies on the existence of other sources whose current emissions might be reduced to compensate for pollution from the Ordinance, the County should assess whether such sources actually exist in sufficient number such that reducing their collective emissions would compensate for the Ordinance through 2035 as promised.

The October Draft SREIR suggests that evolving technologies might complicate such an analysis, but this is a red herring. The October Draft SREIR already lists examples of the type of pollution-reducing projects that might be funded by mitigation fees, like replacing or retrofitting diesel-powered stationary equipment or mobile sources, reducing emissions from infrastructure associated with water and wastewater treatment and conveyance, and funding lower-emission equipment and processes for local businesses and institutions. *Id.* at 4.3-165. Moreover, the Air District issues annual reports identifying the pollution-reducing projects they fund, and past reports include four years' worth of projects funded pursuant to the OG-ERA.⁶ Starting with these examples, the County easily could assess whether enough such sources already exist within the Air District's jurisdiction to offset the new pollution that the Ordinance will generate.

Significantly, such an analysis should account for not only the emissions reduction projects the Air District must fund to achieve a "no net increase" in air emissions pursuant to Mitigation Measure 4.3-8 and the OG-ERA, but the Air District's other, competing pollution-reducing commitments it has made pursuant to the additional 44 emissions reduction agreements it has entered into with other projects. *See* October Draft SREIR at 4.3-136 (noting "the OG-

⁶ See, e.g., San Joaquin Valley Air Pollution Control Dist. (SJVAPCD), *2020 Annual Report - Indirect Source Review Program* at Appendix A, <https://www.valleyair.org/ISR/Documents/2020-ISR-Final-Annual-Report.pdf> (SJVAPCD 2020 Annual Report).

ERA is only one of 45 emission reduction agreements approved by the SJVACPD as of June 20, 2020”).

Conducting the foregoing analysis is critical because, if there are not enough pollution-reducing projects currently in existence to compensate for the Ordinance—meaning the County is relying on future technical innovations that currently do not exist to effectuate Mitigation Measure 4.3-8 (as the October Draft SREIR suggests at 4.3-135)—then the public and decision makers are entitled to know as much.

2. Mitigation Measure 4.3-8 Lacks Transparency and Accountability, and Is Not Enforceable.

Commenters previously explained that Mitigation Measure 4.3-8 is inadequate and unlawful because it does not mandate any schedule for implementing pollution-reducing projects, nor does it include any mechanism to ensure that the rate of new permitting does not outpace the rate of mitigation or mechanism to ensure that mitigation ultimately happens. The October Draft SREIR does not address these deficiencies. To the contrary, its discussion of the County and Air District’s track record implementing Mitigation Measure 4.3-8 under the 2015 Ordinance and 2015 Final EIR demonstrates the inability of the measure and OG-ERA as written to effectively mitigate air quality impacts and protect County residents from harmful increases in air pollution.

In 2015, the County’s Final EIR acknowledged that, under Mitigation Measure 4.3-8, “not all of the reductions achieved by the OG-ERA will occur exactly contemporaneously with Project emissions increases.” *Id.* at 7-185 (AR008681). Nonetheless, the 2015 Final EIR advised the public and decision makers (incorrectly) that “the emission reductions from implementing the OG-ERA are expected to match the emissions from drilling new wells on an annual basis.” *Id.*

The October Draft SREIR fails as an informational document because nowhere does it apprise the public or decision makers of the previously admitted lag between the issuance of new permits and the onset of air-polluting activities and the later (if ever) funding and implementation of pollution-reducing activities. Rather than acknowledging any lag or informing the public of the expected compliance timeline—as the County did in the 2015 Final EIR—the October Draft SREIR provides *less* information, stating only that “there *may* be a lag” and “contemporaneous mitigation with fee collection or with emitting activities *may* not occur.” October Draft SREIR at 4.3-141 (*italics added*).

The October Draft SREIR’s failure to acknowledge the expected—and likely extended—lag between the onset of emitting activities and later, if ever, mitigation is remarkable given that *at no point from 2016 until even today* has the Air District succeeded in securing pollution reductions at the pace of permitting under the 2015 Ordinance. *See* October Draft SREIR at 4.3-137 to 4.3-139. Indeed, even though the County has been prohibited by court order from issuing permits under the 2015 Ordinance since March of this year, the County and Air District still

cannot promise that all fee monies collected before then will be spent by January 1, 2021. The most the County and Air District can promise is that most or all of the OG-ERA fee receipts will be “encumbered” (*id.* at 4.3-139) by the start of 2021, which still falls short of actually spending the money to achieve real-world mitigation.

The October Draft SREIR also fails as an informational document—and highlights deficiencies in Mitigation Measure 4.3-8 and the OG-ERA—because the County does not, and apparently is unable to, tell the public and decision makers how much air pollution was offset from 2016 to 2020 under this mitigation scheme.

Commenters’ September 16 Letter criticized the August Draft SREIR for not disclosing the County’s real-world experience implementing Mitigation Measure 4.3-8 and the OG-ERA, which constitutes significant new information. In response, the October Draft SREIR includes a “Fiscal Summary” table that identifies the Air District’s annual combined spending and balances for all of the emission reduction agreements it administers, along with a table that identifies emissions reductions collectively achieved by all such agreements. *Id.* at 4.3-137 to 4.3-138 (Tables 4.3-CC and 4.3-DD). This information is incomplete, misleading, and legally deficient for several reasons:

- First and foremost, neither the fiscal summary nor the pollution reduction figures offered in the October Draft SREIR are specific to Mitigation Measure 4.3-8 and the OG-ERA. The October Draft SREIR instead provides aggregate figures that represent the Air District’s collective efforts under several dozen different agreements. The public and decision makers thus are left in the dark about the performance of Mitigation Measure 4.3-8 and the OG-ERA specifically.
- According to the October Draft SREIR, “[a]s the OG-ERA mitigation fees account for approximately 91% of the VERA fees received by the SJVAPCD, it is reasonable to conclude that 91% of the fees spent by the SJVAPCD are from OG-ERA mitigation fees.” *Id.* at 4.3-138. This odd statement about what one might “reasonably” conclude about the Air District’s expenditures seems to indicate that the County does not actually know precisely how or when OG-ERA funds have been spent. The County cannot credibly attest to the effectiveness of Mitigation Measure 4.3-8 and the OG-ERA while lacking such information, and the fact that the County lacks such basic information, after more than four years of implementation, demonstrates that the measure lacks transparency and accountability, and is not enforceable.
- The October Draft SREIR also wholly fails to disclose how much air pollution has been reduced under Mitigation Measure 4.3-8 and the OG-ERA. Table 4.3-DD only provides aggregate information for all of the emissions reduction agreements administered by the Air District (*id.* at 4.3-138), meaning the public and decision makers are again left without crucial information on the performance of Mitigation Measure 4.3-8 and the OG-ERA.

This information gap suggests that the Air District is not meeting the terms of the OG-ERA, which states: “The District will annually report on total tons of emissions reductions achieved pursuant to this Agreement” and “such data will be used by the County and disclosed to the public.” October Draft SREIR, Appendix C at 9.

- Critically, even if one attributes a portion of the emissions reductions identified in Table 4.3-DD to the OG-ERA (say, as a percentage proportional to funding), this still does not give the public or decision makers any sense of whether Mitigation Measure 4.3-8 and the OG-ERA worked as promised from 2016-2020. As noted above, the October Draft SREIR states that “[e]mission reductions funded by the OG-ERA mitigation fees will offset the impacts from the new oil and gas activities *resulting in a ‘no net increase’ to contributions of designated criteria air emissions* in the entire air basin.” *Id.* at 4.3-135 (italics added). Consequently, the County must not only disclose the amount of emissions reductions achieved by the Air District pursuant to the OG-ERA to date, it also must disclose whether this quantity equals the amount of Ordinance-generated air pollution that Mitigation Measure 4.3-8 was supposed to offset as a consequence of the number of permits issued.

The October Draft SREIR fails as an informational document without the foregoing information. Further, the fact that the County seems to lack such basic information, after more than four years of experience with Mitigation Measure 4.3-8, demonstrates that the measure lacks transparency and accountability, and is not enforceable.

- The October Draft SREIR seems to suggest that Mitigation Measure 4.3-8 and the OG-ERA have performed well because Air District expenditures are finally catching up with the County’s rate of new permitting (*id.* at 4.3-39), although this likely is attributable to the court-ordered ban on new permits. In any event, from the standpoint of achieving the degree of air emissions mitigation promised by the County—namely, “fully offset[ting] Project emissions” (*id.* at 4.3-14)—Mitigation Measure 4.3-8 and the OG-ERA appear to have fallen woefully short to date.

According to the October Draft SREIR, “the OG-ERA would reduce per well emissions . . . by an estimated total ranging from 3.46 tons per year to 2.26 tons per year.” *Id.* at 4.3-133. The specific per well emissions, by year, are set forth in Table 4.3-32. *Id.* at 4.3-132 to 4.3-133. Taking the October Draft SREIR’s per-well emissions figures in tons per year (3.37 for 2016; 3.31 for 2017; 3.07 for 2018; 2.87 for 2019; and 2.66 for 2020) and multiplying them by the number of new wells that the County authorized pursuant to the 2015 Ordinance during those years (1,122 in 2016; 1,891 in 2017; 1,055 in 2018; 1,208

in 2019; and 604 in 2020)⁷ indicates that the Air District, pursuant to the OG-ERA, *should have reduced 18,353 tons of air pollution to date* (3,781 tons in 2016; 6,259 in 2017; 3,239 in 2018; 3,467 in 2019; and 1,607 in 2020). But for the same years, the October Draft SREIR reports that *the Air District has only been able to reduce a mere 4,048 tons of air pollution under the OG-ERA and more than 40 other similar agreements combined. Id.* at 4.3-138.

The County must disclose this enormous gap between the degree of mitigation it has promised and continues to promise and the reality of what the County and Air District have been able to achieve to date under Mitigation Measure 4.3-8 and the OG-ERA. The County must also analyze and inform the public and decision makers about the health and environmental consequences of this shortfall. Further, if the County intends to mitigate air emissions to a “no net increase” (October Draft SREIR at 4.3-143), it obviously must overhaul Mitigation Measure 4.3-8 and the OG-ERA.

- As an alternative to paying a fee, Mitigation Measure 4.3-8 also allows permit applicants to undertake direct air pollution reductions themselves subject to approval by the Air District. October Draft SREIR at 4.3-165. The October Draft SREIR does not disclose how many operators, if any, have undertaken to reduce emissions directly themselves. The County must further provide full details on any such operators’ projects and the quantities of emissions reduced. Without these details, the October Draft SREIR fails as an informational document.

In defense of Mitigation Measure 4.3-8 and the OG-ERA, the October Draft SREIR also offers the following new assertions:

The OG-ERA is anticipated to fully offset Project emissions of NOX, PM10, PM2.5, and ROG. As explained above, many Project emissions result from construction activities, including well drilling, and these emissions are temporary. However, the emission reduction projects funded by OG-ERA fees result in the permanent shutdown of emitting equipment and the permanent removal of those emissions from the air basin. Only the first year of those emission reductions is truly counted as mitigation obtained by the OG-ERA fees, despite the fact that those reductions continue in perpetuity. Thus, the OG-ERA may result in higher emission reductions than the emissions that occur in just one year from the Project and for which mitigation fees are paid.

Id. at 4.3-141. This analysis, which suggests that emissions associated with the Ordinance are temporary construction emissions whereas the pollution reductions under the OG-ERA are

⁷ Kern County Planning & Natural Resources Dept., *Kern County Oil and Gas Permitting Program Annual Progress Report (December 1, 2019 to November 30, 2020)*, p. 6, https://psbweb.co.kern.ca.us/planning/pdfs/oil_gas/kern_oil_gas_annual_progress_report_2020.pdf.

permanent, is incorrect and misleading. First, although some of the Ordinance-driven emissions come from construction, it is apparent that emissions from long-term operations are significant as well—even though, unlike construction emissions, the October Draft SREIR neglects to provide a table summarizing aggregate operational emissions. *Compare id.* at 4.3-109 (construction emissions) *with id.* at 4.3-110 to 4.3-122 (operational emissions). Second, it is inaccurate to suggest that Mitigation Measure 4.3-8 and the OG-ERA will establish “permanent” pollution reductions because the Air District frequently uses emissions reduction agreement fees to fund relatively short-lived engine replacements for mobile sources.⁸

Given that Mitigation Measure 4.3-8 and the OG-ERA, to date, have not been effective or implemented as promised in the 2015 Final EIR and as prospectively described in the October Draft SREIR, the County must improve its approach to mitigation for air quality impacts. As Commenters explained in our September 16 Letter:

- The Ordinance, Mitigation Measure 4.3-8, and the OG-ERA all lack any requirement or mechanism that ties the rate of new oil and gas permitting—and the consequent onset of new, harmful air pollution emissions—to the rate of mitigation accomplished by the Air District. Consequently, Mitigation Measure 4.3-8 and/or the OG-ERA must mandate that new emissions from drilling and other activities permitted by the County may not outpace the Air District’s efforts to implement contemporaneous pollution-reducing projects.
- To allow the public and decision makers to meaningfully track the progress of mitigation, the County should modify the Ordinance, Mitigation Measure 4.3-8, and/or the OG-ERA to mandate quarterly reporting by the County and Air District that quantifies: the number of new permits and associated emissions, both over the duration of the reporting period and cumulatively since the 2015 Ordinance was first enacted; the quantities of pollution reduced under the OG-ERA, both during the reporting period and cumulatively since the 2015 Ordinance was enacted; and the location of all pollution-reduction projects funded with fee monies paid pursuant to Mitigation Measure 4.3-8.

Other shortcomings in Mitigation Measure 4.3-8 and the OG-ERA are discussed in the attached follow-up Pless Report (Addendum A) and Fox Report (Addendum B). The County must respond to these comments specifically and in their entirety, including the attached follow-up Pless Report and Fox Report.

B. Mitigation Measure 4.3-8 and the OG-ERA Can and Should Prioritize Pollution-Reducing Projects that Provide More Community Benefits.

As explained in the September 16 Letter, the County can and should insist that all fee monies collected pursuant to Mitigation Measure 4.3-8 be spent on pollution-reducing projects in Kern County, instead of allowing the Air District to spend the money elsewhere, potentially

⁸ See, e.g., SJVAPCD 2020 Annual Report at A-1 to A-28.

hundreds of miles away. Further, the County can and should prioritize OG-ERA spending on pollution-reducing projects that directly benefit those community members who experience disproportionate socioeconomic and pollution burdens. The Final SREIR therefore should identify, evaluate, and ultimately adopt changes to Mitigation Measure 4.3-8 and/or the OG-ERA to ensure that more air quality mitigation fee monies are spent on pollution-reducing projects in Kern County that directly benefit the community members who face the most direct impacts from oil and gas development.

The October Draft SREIR is unresponsive to the concerns expressed in Commenters' September 16 Letter. Rather than address Commenters' concerns, the October Draft SREIR merely describes the contractual terms of the existing OG-ERA that was adopted along with the 2015 Ordinance and Final EIR. October Draft SREIR at 4.3-135 to 4.3-136. The County, however, is not bound to repeat its mistakes from the past. The proposed Ordinance represents a new decision that is subject to further CEQA analysis and mitigation; the County therefore can and should renegotiate the OG-ERA to address the shortcomings in its implementation to date.

Separately, the October Draft SREIR fails as an informational document with respect to the issue of where Mitigation Measure 4.3-8 fees have been spent and therefore likely will continue to be spent. According to the October Draft SREIR, "implementation of the OG-ERA will involve *some* emission reduction projects in other counties in the SJVAB or even outside the valley." *Id.* at 4.3-135 (italics added). Not only is this statement vague and uninformative, it is potentially misleading. Since adoption of the OG-ERA in 2016, the Air District has established a funding track record that constitutes significant new information. The County must disclose where funds have been spent and where pollution-reducing projects have been implemented under the 2015 Ordinance and Final EIR, and let the public and decision makers know if most of the money and most immediate air pollution benefits from Mitigation Measure 4.3-8 are being exported to other counties (which Commenters understand to be the case).

C. The October Draft SREIR Fails to Adequately Analyze or Mitigate Dangerous PM_{2.5} Emissions.

As Commenters noted in the September 16 Letter, the Fifth District Court of Appeal ordered the County to set aside the 2015 Ordinance and Final EIR, in part, because:

[T]he EIR inadequately addressed air quality impacts because it did not discuss the impact of a mitigation measure on fine particulate matter (PM_{2.5}) emissions or, alternatively, provide an explanation for why there is no separate discussion of the measure's impact on PM_{2.5} emissions. In addition, the mitigation measure addressing particulate matter does not provide for enforceable mitigation of PM_{2.5} emissions and the Board made no finding that mitigation of PM_{2.5} was not feasible.⁹

⁹ *King & Gardiner Farms v. County of Kern* (2020) 45 Cal.App.5th 814, 830.

Commenters previously explained that the August Draft SREIR did not address these unlawful deficiencies in the County's treatment of PM_{2.5} or other related deficiencies highlighted by the Court of Appeal's decision. The October Draft SREIR is virtually unchanged with respect to its treatment of PM_{2.5}, meaning the failure to adequately analyze or mitigate PM_{2.5} emissions persists.

The October Draft SREIR's failure to address PM_{2.5} also is discussed in the attached follow-up Pless Report (Addendum A). The County must respond to these comments specifically and in their entirety, including the attached follow-up Pless Report.

IV. The County Proposes Arbitrary, Inconsistent, and Unenforceable Setback Requirements.

A. Setback Distances Established by the Ordinance Are Unsupported and Inadequate.

Section 19.98.060 of the proposed Ordinance would establish certain "implementation standards and conditions" for all oil and gas exploration and production activities. With respect to setback distances from other land uses, section 19.98.060(A) states:

No oil or gas well shall be drilled within the following distances:

1. One hundred (100) feet of any public Major or Secondary highway or building not necessary to the operation of the well;
2. Two hundred and ten (210) feet from the legal parcel property line of any sensitive receptor (single or multi-family dwelling unit, place of public assembly (a legally permitted place where 100 or more people together in a building, or structure, for the purpose of amusement, entertainment or retail sales), churches, institution, or hospital); or
3. One hundred (100) feet of any building utilized for commercial purposes, not used for oil and gas operations.
4. Three hundred (300) feet of the legal parcel property line that contains a permitted public or private school. A single family or multi-family dwelling unit that may have home schooling activities [sic] shall use the single family dwelling unit distance.

October Draft SREIR, Vol. 1, Chapter 3, Attachment A at 5.

This proposal differs from the setback distances that preceded the 2015 Ordinance. In particular, section 19.98.050 of the predecessor (and now current) Zoning Ordinance (Title 19) states:

No oil or gas well shall be drilled within one hundred (100) feet of any public highway or building not necessary to the operation of the well, or within one hundred and fifty (150) feet of any dwelling, or within three hundred (300) feet of any building used as a place of public assembly, institution, or school, or within fifty (50) feet of any building utilized for commercial purposes constructed prior to the commencement of such drilling, without the written consent of the owner of such structure.

See October Draft SREIR, Vol. 1, Chapter 3, Attachment A at 26. The County's current proposal also differs from the August Draft SREIR, which established a 210-foot setback for all sensitive receptors, including schools; the County now proposes a 300-foot distance for schools.

The setback distances proposed under section 19.98.060(A) are not based on substantial evidence.

First, nothing in the October Draft SREIR explains the basis for these proposed distances, let alone supports their adoption.

Second, the October Draft SREIR does not address why schools are treated differently than other sensitive receptors like homes and hospitals.

Third, the October Draft SREIR neglects to discuss why the County is proposing to *decrease* the setback distance for churches, hospitals, and other places of public assembly from 300 feet to 210 feet, or how this would alter the health and safety risks that wells would impose on sensitive receptors. Similarly, the October Draft SREIR neglects to discuss why the County is proposing to decrease the existing setback distance between oil and gas wells and residences from 300 feet to 210 feet for wells proposed in a Petroleum Extraction (PE) or Drilling Island (DI) specialty district. October Draft SREIR, Vol. 1, Chapter 3, Attachment A at 34.

Finally and most importantly, the October Draft SREIR fails to and must consider the substantial body of scientific evidence demonstrating that a 2,500-foot and other setback distances between wells and sensitive receptors will minimize or substantially lessen the impacts of oil and gas activities on sensitive receptors. We previously discussed these studies in detail in section VIII.A of the September 16 Letter.

B. Setback Distances Established by Mitigation Measure 4.3-5 Are Still Unsupported and Inadequate.

Mitigation Measure 4.3-5 is still inadequate and unsupported. Although the measure now requires site vicinity maps to show all sensitive receptors within 4,000 feet (as opposed to 3,000 feet) from the construction site, the actual setback distances that it proposes remain unchanged (October Draft SREIR at 4.3-158 to 4.3-159), and are still based on the same outdated and unreliable health risk assessments. Other changes made to Mitigation Measure 4.3-5 in the

October Draft SREIR undermine the measure or sow confusion. Notably, the text change from 3,000 and 4,000 feet, as well as other changes to Measure 4.3-5 that we discuss below, are not underlined and italicized in the text (*see id.*), despite the County's promise to do so throughout the October Draft SREIR.

One change to Mitigation Measure 4.3-5, made without comment or supporting rationale, seems to narrow the scope of permit applications and therefore the universe of oil and gas activities that would be subject to the measure. Mitigation Measure 4.3-5 now refers to “[t]he Site Plan Application for *an Oil and Gas Conformity Review*,” a specification absent from the original measure. Compare August Draft SREIR at 4.3-136 (language absent), with October Draft SREIR at 4.3-158 to 4.3-159 (italics added). The apparent result would be to exclude operators seeking Conditional Use Permits and Minor Activity Reviews from having to comply with the minimum setback distances in Mitigation Measure 4.3-5. The County provides no basis for this unfounded change. All permit applications should be required to identify sensitive receptors, and all activities should be required to abide setbacks from such sensitive receptors.

In another change, the October Draft SREIR now specifies that “[t]he *well site* and nearest property line of a sensitive receptor shall be permitted using both maps and coordinates on the map” and that minimum setback distances will be measured “from the closest edge of the *well pad* to the property line of the nearest sensitive receptor.” October Draft SREIR at 4.3-158. It is unclear, however, whether the terms “well site” and “well pad” are interchangeable.

In any case, the setback distances set forth in Mitigation Measure 4.3-5 should be measured from the property line of the sensitive receptor to the closest edge of the operator's construction site, which the County recognizes as the “potential impact area.” *Id.* at 4.3-158. The potential impact area at an oil and gas well construction site includes not only well pads but also ancillary equipment, oil and oil wastewater treatment and storage and disposal facilities, pipelines, and access roads. Indeed, the County defines “initial construction activities” broadly to include “well pad construction, drilling, and installation of new wells or construction of new ancillary equipment facilities, modification of existing wells and equipment through ‘reworking’ or re-drilling existing wells, as well as dismantling or removal of equipment and well abandonment.” *Id.* at 3-40; *see also id.* at 3-40 to 3-58 (detailing all construction activities under the Ordinance). Since Mitigation Measure 4.3-5 is proposed to mitigate the exposure of sensitive receptors to substantial air pollutant concentrations (*id.* at 4.3-143), the measure should be designed to address the full range of construction equipment and activities that generate harmful air pollution. *Id.* at 4.3-96 to 4.3-98 (Table 4.3-11).

The alternative risk minimization measures listed under section c of Mitigation Measure 4.3-5, which were inadequate to begin with (as detailed in our October 2 Letter), have also been inexplicably watered down. The August Draft SREIR stated that operators must “[a]ssist and pay to relocate residents to temporary lodging during well construction, drilling, and completion activities” if residents agree to the relocation. August Draft SREIR at 4.3-137. The same section now allows operators to simply provide written confirmation that the identified sensitive

receptors “agree to voluntary relocation or restrictions on receptor activities”—but it no longer requires operators to pay for the relocation. October Draft SREIR at 4.3-159. There is no support for eliminating the previous requirement.

Mitigation Measure 4.3-5 still does not explicitly state that operators are required to meet the specified setback distances. *Id.* at 4.3-158. One may indirectly infer that setbacks are required through section c, which provides alternative compliance options “[i]f the above [setback] distances cannot be met.” *Id.* at 4.3-159. The County should clearly state that operators are required to locate wells to meet the required setback distances, or in the alternative adopt other measures that would allow the well to meet the risk threshold.

Finally, as discussed in section VII.A, *infra*, the County’s analysis of a 2,500-foot setback remains inadequate. The County should increase all setback requirements in the Ordinance to at least that distance in order to more fully protect public health.

C. The October Draft SREIR’s Analysis of Noise Impacts Is Still Inadequate, and Still Conflicts with the Kern County and Metropolitan Bakersfield General Plans.

The County’s revised draft SREIR continues to fall short in analyzing indoor noise impacts of activities subject to the Ordinance. The revisions fail to create a threshold of significance for indoor noise levels or protect residents from significant increases, in violation of the Kern County and Metropolitan Bakersfield General Plans, both of which address indoor levels.

In particular, Implementation Measure 4 of the Metropolitan Bakersfield General Plan’s Noise Element “[r]equire[s] proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dB CNEL and *interior noise levels in excess of 45 dB CNEL* and so that impacts on noise sensitive uses shall not exceed the performance standards in Table VII-2.” October Draft SREIR at 4.12-18 (emphasis added). Similarly, Implementation Measure F in the Kern County General Plan’s Noise Element requires “proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dB L_{dn} and *interior noise levels in excess of 45 dB L_{dn}* .” *Id.* at 4.12-15 (emphasis added).

The County concluded that an operator’s demonstrating compliance with the exterior noise level criterion of 65 dB DNL would automatically “ensure project compliance with the interior noise level criterion of 45 dB DNL,” asserting that “[w]hen sound is limited to 65 dB DNL at the exterior of a structure, the interior noise levels are *typically* limited to 45 dB DNL.” *Id.* at 4.12-25 (emphasis added). The County does not provide support for these assumptions, nor a rationale for failing to include a separate interior noise level limit akin to those found in the General Plans. Similarly, the County asserts without basis or support that “typical construction

complying with building code standards can be expected to provide an outdoor-to-indoor noise level reduction of at least 20 dB,” and that this expected reduction is the “lower end of the national average of outdoor-to-indoor noise reduction.” *Id.* (providing no reference to the purported “national average”).

Additionally, the County does not specify whether the referenced “typical” outdoor-to-indoor noise reduction would apply to oil and gas activities. Nor can the County do so, since it explicitly recognizes oil and gas drilling is a “unique construction activity” with “characteristics not normally associated with construction.” *Id.* at 4.12-26 to 4.12-27. The County lists several factors that make oil and gas drilling unique in this regard, including drill rig height, “round-the-clock” construction or drilling activities that can last for weeks on end, the rotational effect of continuous drilling and pumping, and “the infeasibility of noise shielding.” *Id.* The County notes that an oil rig could be as tall as 80 feet and “this increased height causes noise to disperse out from the property in a pattern distinct from conventional construction noise.” *Id.* at 4.12-26. Given all of the above, it is not reasonable for the County to simply expect the outdoor-to-indoor noise level reduction for oil and gas drilling to be the same as that of conventional construction.

The County likewise cannot assume a uniform outdoor-to-indoor reduction level for oil and gas activities. The October Draft SREIR acknowledges that multiple site-specific factors affect the dispersion of sound, including existing ambient conditions, topography, shielding, noise source height, receiver height, and ground absorption factors. *Id.* at 4.12-33. Due to the characteristics of oil drilling that differentiate it from typical construction activities, the County must conduct a separate analysis of how oil and gas activities under the proposed Ordinance would impact interior noise levels for sensitive receptors. Additionally, the County should include appropriate mitigation measures to reduce any significant indoor noise impacts.

The October Draft SREIR incorporates a limited discussion of select studies related to the noise impacts of oil and gas operations. *Id.* at 4.12-8. Yet, instead of using these studies to analyze the Ordinance’s noise impacts, the County attempts to downplay the findings of the studies and/or question their applicability to California. *Id.* The County repeats this approach in other portions of the October Draft SREIR, as we discuss in section VII.A.1, *infra*.

For instance, the October Draft SREIR points out that a literature review by Hays et al. (2017)¹⁰ noted that there was no peer-reviewed literature on noise levels and potential health impacts from noise exposure related to oil and gas development. October Draft SREIR at 4.12-9. However, the sentence cherry-picked by the October Draft SREIR from Hays et al. (2017) is inconsequential to the study’s key finding that hydraulic fracturing, which would take place under this Ordinance, can produce noise levels that increase annoyance, sleep disturbance, and the risk of cardiovascular disease. The County also criticizes that the studies that Hays et al.

¹⁰ Hays, J., McCawley, M., Shonkoff, S. B. C. (2017). Public health implications of environmental noise associated with unconventional oil and gas development. *Science of The Total Environment*. <https://doi.org/10.1016/j.scitotenv.2016.11.118>.

(2017) reviewed estimated rather than measured direct exposure to noise.¹¹ But the County itself relies on estimates throughout the noise section (section 4.12). *See, e.g.*, October Draft SREIR at 4.12-29 to 4.12-30 (Tables 4.12-9 to 4.12-11 show estimated construction noise levels for well pad preparation, well drilling, and hydraulic fracturing operations).

The County critiques the other four studies it included in the October Draft SREIR by emphasizing the stated limitations of each study, which as we discuss in section VII.A.1, *infra*, is an easy but generally non-responsive way to dismiss a study's relevance to policy decisions. *Id.* at 4.12-9 to 4.12-10. The County also concludes that these studies were inapplicable because they were not conducted in California. The only rationale that the County appears to offer here is that since California's oil reserves typically are shallower in comparison to reserves in other states, oil wells "take less time to drill and there is therefore less exposure to the loudest oil and gas activities." *Id.* at 4.12-8 to 4.12-9. However, the County's assertion that drilling distances are necessarily shorter in California is contradicted by the record.¹² In addition, the County seems to imply that only chronic noise impacts need to be addressed, ignoring CEQA's mandate that both short and long term, as well as direct and indirect impacts, must be analyzed. In any case, as discussed above, the County acknowledges that oil and gas activities will expose Kern residents to constant noise for a long duration of time, with "round-the-clock" drilling that can occur for up to 60 days, and where noise shielding is infeasible. *Id.* at 4.12-26 to 4.12-27.

D. Mitigation Measure 4.12-1 Is Still Inadequate.

We are pleased to see that Mitigation Measure 4.12-1 now requires that operators achieve larger setbacks of 2,355 to 7,900 feet, depending on the relevant activity. October Draft SREIR at 4.12-52. These proposed distances are more protective and aligned with distances discussed in the relevant studies regarding noise impacts that we discussed in our September 16 Letter.

Unfortunately, the County has changed Mitigation Measure 4.12-1 in another way that makes it less protective of the health and safety of sensitive receptors under the October Draft SREIR. The August Draft SREIR required drilling (well advancement, pull-out of well/borehole), large scale exploratory drilling, well workover, and hydraulic fracturing construction activities to comply with Mitigation Measure 4.12-1, regardless of the type of permit an operator was seeking. August Draft SREIR at 4.12-36. However, the October Draft SREIR now only requires applicants for an Oil and Gas Conformity Review to comply with Mitigation Measure 4.12-1, in effect excluding applicants for a Conditional Use Permit from the obligation to comply with this measure. October Draft SREIR at 4.12-51. The County does not support and cannot reasonably support this change and must correct this error in order to ensure that Mitigation Measure 4.12-1 applies to all well construction activities regardless of permit type.

¹¹ *Id.*

¹² See section VII.A.I, *infra*.

Separately, Mitigation Measure 4.12-1 now allows operators to choose to either relocate their activity or submit an “Acoustic Noise Reduction Report” demonstrating how they will otherwise meet the Noise Standard. *Id.* at 4.12-52. The County should strengthen Mitigation Measure 4.12-1 to specify that operators may only forgo relocation and rely on an Acoustic Noise Reduction Report if they demonstrate that it is infeasible for them to relocate wells and other equipment to meet the new setback requirements. The County can easily change section 2.a of Mitigation Measure 4.12-1 to the following: “An Acoustic Noise Reduction Report completed by a qualified professional shall be provided in conjunction with the application if *the operator has demonstrated that the identified mitigation trigger distance cannot will not* be met.” *Id.* at 4.12-52 (proposed changes in italics).

The County also should strengthen the noise reduction method identified in section 2.e.5 to require the operator to pay sensitive receptors to voluntarily relocate during the entire construction period, similar to what the County proposed in Mitigation Measure 4.3-5 under the August Draft SREIR. August Draft SREIR at 4.3-137.

Finally, the County should clarify that the setback distances and alternative noise reduction methods must be achieved prior to the beginning of any proposed construction activity.

E. Mitigation Measure 4.12-2 Is Unclear and Is Still Inadequate.

Mitigation Measure 4.12-2 now sets “mitigation triggering distances” of 198 and 650 feet for electric- and diesel-powered wells, respectively. October Draft SREIR at 4.12-35, 4.12-48 (Table 4.12-15). The County also clarifies that new oil and gas wells must follow a minimum setback of 210 feet from the closest dwelling unit, place of public assembly, church, institution or hospital, and follow a minimum setback of 300 feet from the closest school. *Id.* at 4.12-54. Additionally, Mitigation Measure 4.12-2 now requires that “[a]n Acoustic Noise Reduction Report completed by a qualified professional [] be provided in conjunction with the application for any well sited between two hundred and ten (210) feet and six hundred and fifty (650) feet of the well pad and nearest property line of a sensitive receptor that will use diesel power for the well production.” *Id.* at 4.12-55; *see also id.* at 4.12-43.

These distances prescribed by Mitigation Measure 4.12-2 are premised on Table 4.12-14A in the October Draft SREIR., which states that electric- and diesel-powered wells would emit 49 dB equivalent sound pressure level (Leq) at 198 and 650 feet away from a receptor, respectively. *Id.* at 4.12-38. Leq can be sound energy over any period of time, but Table 4.12-14A does not specify a period of time. This is significant because it is unlikely that Leq is interchangeable with the unit of measurement that the threshold of significance for noise impacts appears to use: day/night average sound level (DNL) or community noise equivalent level (CNEL). *Id.* at 4.12-24.¹³ Indeed, WSP, the consultant that created Table 4.12-14A, states that

¹³ See also October 2 Letter at 12 (detailing why the unit of measurement for the noise standard should be clarified).

“while the screening distances [for electric- and diesel-powered wells] are calculated using Leq measurements, the noise reduction report and reduction measures described in the 2015 FEIR require the applicant to mitigate based on DNL metrics to ensure nighttime noise and sleep disturbance impacts are mitigated.” October Draft SREIR, Appendix E at 6 (Supplemental Noise Technical Memorandum).

By using these potentially different units of measurement, the County may be drastically underestimating the mitigation-triggering distances incorporated into Mitigation Measure 4.12-2. As explained in the “Environmental Noise Assessment Noise Study Technical Report” prepared for the County by Brown-Buntin Associates, Inc. in 2015, “[a] constant noise level of 50 dB for 24 hours per day would result in a DNL/CNEL of approximately 57 dB. A constant noise level of 55 dB for 24 hours per day would result in a DNL/CNEL of approximately 62 dB.” 2015 Final EIR, Appendix V, at 14 (AR006730). A 49 dB Leq over the period of one hour therefore could result in a DNL/CNEL of 56 dB. The failure of Table 4.12-14A to specify the time frame for the 198 and 650-foot screening contours is thus consequential because a sure timeframe would necessitate larger screening distances in order to ensure that operational noise impacts do not exceed 49 dB DNL/CNEL.

Additionally, it is unclear why the mitigation-triggering distances in Mitigation Measure 4.12-2 (for operation) are shorter and inconsistent with those in Mitigation Measure 4.12-1 (for construction). If construction necessarily precedes operation, and construction is subject to an initial, larger mitigation-triggering distance, it is difficult to conceive how operations might occur at a closer setback distance.¹⁴ The County fails to provide any explanation regarding circumstances where construction and operational activities would require different setback distances.

V. The October Draft SREIR’s Analysis of Water Supply and Quality Impacts and Their Mitigation Is Inadequate.

A. The October Draft SREIR Fails to Accurately Describe Existing Conditions Regarding the Generation and Use of Oil Wastewater.

The October Draft SREIR includes additional information related to oil and gas produced water, or oil wastewater. October Draft SREIR at sections 4.9 and 4.17. Unfortunately, this updated discussion fails, as did the August Draft SREIR, to accurately describe existing conditions on the generation and use of oil wastewater.

An accurate baseline of existing conditions is the necessary foundation from which the County must analyze the environmental and health impacts of oil wastewater that would result

¹⁴ See additional discussion in our October 2 Letter at 15.

from this Ordinance.¹⁵ “Without a determination and description of the existing physical conditions on the property at the start of the environmental review process, the EIR cannot provide a meaningful assessment of the environmental impacts of the proposed project.”¹⁶ However, the County fails to provide such a description of existing baseline conditions regarding oil wastewater in the Project Area because it relies on outdated information on the volume of oil wastewater that was being generated from oil and gas activities in 2012. Specifically, the County estimates that 234,959 acre-feet (AF) of oil wastewater was generated by oil and gas operations in the Project Area in 2012. October Draft SREIR, Appendix D (“Supplemental Water Supply Baseline Technical Report”) at 3.

The Final SREIR should include comprehensive information on the volume of produced water generated within the Project Area from the past few years, as well as the volume of produced water being used for irrigation and domestic uses. The County recognizes that existing conditions have changed significantly between 2012 and 2020. For instance, the October Draft SREIR notes that as existing oil fields become more depleted, more oil wastewater will be produced in order to recover the same amount of oil. *Id.* at 4.9-177. The County also acknowledges that wastewater disposal increased from 6 units of produced water per unit of oil recovered in 2002 to nearly 13 units of produced water per unit of oil recovered in 2012. *Id.* at 4.9-27. Accordingly, the October Draft SREIR concludes that between 2002 and 2013 alone, produced water increased from 149,400 acre-feet per year (AFY) to 231,250 AFY, respectively. *Id.* at 4.9-26; *see also id.*, Figure 4.9-7 (Project Area Oil and Produced Water Production 2002-2013 (acre-feet)).

The October Draft SREIR claims that it includes new information regarding oil wastewater generation and use. *Id.*, Appendix D at 2. However, the little information that the County incorporates is piecemeal and incomplete and does not allow the County to fulfill its obligation under CEQA to disclose how much oil wastewater is currently being generated or used within the entire Project Area. For instance, Table 4 in Appendix D indicates that oil and gas operators across the state generated more than 103,000 AF of oil wastewater per quarter, or more than 412,000 AF of water per year, during the 2015 to 2017 time period. *Id.*, Appendix D at 54. However, the County does not address how and whether this statewide information is pertinent to Kern County.

Additional piecemeal information the County provides is that the Cawelo Water District purportedly purchases up to 36,000 AFY of oil wastewater for irrigation and groundwater recharging. *Id.* at 4.9-42. The October Draft SREIR also notes that the Cawelo Water District used a total of 481,800 AF of oil wastewater for irrigation and other uses from 1995 to 2014, and 86,863 AF from 2015 to 2017. *Id.* at 4.9-43, Appendix D at 35. However, these snippets of

¹⁵ See CEQA Guidelines, § 15125, subd. (a); *Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 321-322.

¹⁶ *Save Our Peninsula Com. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 119-120; Pub. Resources Code, §§ 21100(a), 21060.5.

information fail to provide the current baseline for the generation and use of oil wastewater for the entire Project Area. Without this updated baseline, the County's projections of future project-related produced water use in 2035 are based on outdated information and likely inaccurate. *Id.* at 4.9-178 to 4.9-179 (see Table 4.9-27).

Moreover, the County has failed to make a reasonable or good faith effort to incorporate other publicly available, recent information on the generation and use of oil wastewater. For instance, the County does not incorporate information from the Central Valley Regional Water Quality Control Board ("Central Valley Water Board") regarding oil and gas operators' responses on the volume of oil wastewater they supplied water districts from 2014 to 2016.¹⁷ Chevron reported that it sold 53,991 AF of oil wastewater to the Cawelo Water District for irrigation from 2014 to the beginning of 2016 alone.¹⁸ Additionally, the California Resources Production Corporation (CRPC) provided 13,906 AF to the Cawelo Water District and 4,659 AF to the North Kern Water Storage District from 2014 to April 2016.¹⁹

B. The October Draft SREIR Fails to Adequately Analyze the Environmental and Human Health Impacts of Oil Wastewater.

Although the County incorporates piecemeal information related to oil wastewater into the October Draft SREIR, it still fails to adequately analyze the environmental and related human health impacts of oil wastewater under the Ordinance.

The County states that the Ordinance's potential to violate water quality standards or water discharge requirements, or otherwise substantially degrade surface or groundwater quality, is potentially significant. October Draft SREIR at 1-43, 4.9-181 to 4.9-182. Specific activities that could impact water quality include discharges related to produced water reuse and disposal, produced water reuse for enhanced oil recovery activities, produced water reuse for agricultural irrigation, and conveyance and disposal of produced water in ponds and injection wells. *Id.* at 4.9-182. The County then concludes that the impacts from these activities would be rendered less than significant through compliance with applicable regulatory standards and requirements and

¹⁷ Cal. Water Bds. Central Valley-R5, Oil Fields-Food Safety: Responses to 13267 Orders for Chemical Used During Petroleum Production,

https://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/food_safety/.

¹⁸ RE: Order Pursuant to California Water Code Section 13267, issued to Chevron U.S.A. Inc. ("Chevron"), dated April 27, 2016 ("Order") (June 17, 2016) p. 6 (Item 1: Volumes of Produced Water Provided to Cawelo Water District for Irrigation, Chevron U.S.A. Inc.-Kern River Field Operations), https://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/food_safety/data/chevron/2016_0627_chevron_13267_resp.pdf.

¹⁹ Cal. Resources Corp., *Technical Report-Reclaimed Water for Beneficial Use by Water Districts* (June 16, 2016), https://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/food_safety/data/crpcorp/2016_0620_crpc_13267_resp.pdf.

the measures listed in Mitigation Measures 4.9-1 through 4.9-6. *Id.* at 4.9-188, 4.9-193 to 4.9-198.

The County's conclusion is not supported by adequate analysis. An EIR must sufficiently explore a potentially significant impact.²⁰ Here, the County clearly anticipates that reusing and disposing produced water would result in potentially significant impacts.²¹ We discuss some of the specific failures to analyze water quality impacts of oil wastewater below.

1. *The October Draft SREIR Fails to Analyze the Types, Quantities, and Potential Harms of Hazardous Chemicals Found in Oil and Gas Wastewater.*

The County acknowledges that there are at least 347 chemicals that are present in oil wastewater. October Draft SREIR at 4.9-155 (discussing an Oil Field Chemical List developed by the Central Valley Regional Water Quality Control Board ("Central Valley Water Board")). However, the County fails to actually disclose this list of chemicals, and similarly fails to disclose the types, volumes, and concentrations of chemicals in oil wastewater that would be generated under this Ordinance. Moreover, the County fails to conduct an analysis of the likely impacts that these chemicals will have on water quality and human health in the Project Area.

Relatedly, although the County provide a list of chemicals typically used in hydraulic fracturing, this list is not exhaustive and does not include additives used in other oil recovery techniques and from the treatment of oil and gas wastewater. *Id.* at 4.9-118 to 4.9-128 (Tables 4.9-23 & 4.9-24). More egregiously, the County notes that some chemicals used for well stimulation "such as biocides (e.g., tetrakis [hydroxymethyl] phosphonium sulfate, 2,2-dibromo-3-nitrilopropionamide, and glutaraldehyde), corrosion inhibitors (e.g., propargyl alcohol), and mineral acids (e.g., hydrofluoric acid and hydrochloric acid) were found to present concerns for acute toxicity." *Id.* at 4.9-117, 4.9-129. Yet the County does not further identify or discuss the impacts of these harmful chemicals. *Id.*

The County's failure to analyze this topic is not due to a lack of available information. In responding to the Central Valley Water Board's order related to oil wastewater, discussed in section V.A, *supra*, oil and gas operators have shared the types and volume of chemicals in their oil wastewater from 2014 to 2016. For instance, Chevron reported that these oil wastewaters contained at least 16 chemicals used in the drill mud, and at least 10 chemicals used to treat oil wastewater, among dozens of other chemicals used at different stages of processing oil

²⁰ *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 515-516; see CEQA Guidelines, § 15151.

²¹ "An EIR must be prepared that sufficiently explores the significant environmental effects created by the project. [S]imply labeling the effect 'significant' without accompanying analysis of the project's impact . . . is inadequate to meet the environmental assessment requirements of CEQA." *Berkeley Keep Jets Over the Bay Com. v. Bd. of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1371.

wastewater.²² A March 2020 report identified that 143 out of 399 identified chemicals found in produced water (as reported by Chevron and other operators that supplied oil wastewater for irrigation) are subject to further review since they could pose a human health risk to people consuming crops irrigated with produced water.²³

Using this data and other available information related to potential toxicity of oil wastewater, the County must analyze the impacts of oil wastewater, including on groundwater quality and human health, in the Project Area. October Draft SREIR at 4.9-186 to 4.9-187.

2. The County's Inclusion of Select Scientific Studies Does Not Constitute Adequate Analysis.

The October Draft SREIR includes a few studies that it acknowledges demonstrate the “potential of oil and gas activities to violate water quality standards or waste discharge requirements.” October Draft SREIR at 4.9-188. The County’s cursory summaries of select scientific studies related to water quality impacts of oil and gas operations do not qualify as analysis of these impacts. *Id.* at 4.9-184 to 4.9-188. In discussing the majority of these studies, the County omits the key findings of the studies and instead highlights immaterial information such as a particular study’s stated limitations, and/or attempts to dismiss a study simply because it was not conducted in Kern County or California. We discuss the County’s similar approach to evaluating scientific studies in sections VII.A.1 and IV.C.

In particular, the October Draft SREIR (at 4.9-185 to 4.9-188):

- Excludes the key finding from McMahon et al. (2019) that oil wastewater disposed in unlined ponds leached into local groundwater, and radium levels exceeded the ²²⁶Ra+²²⁸RA drinking water maximum contaminant level.²⁴ The October Draft SREIR also incorrectly claims that this study is not specific to Kern County; the three oilfields that the study focused on, Fruitvale, Lost Hills, and South Belridge, are located squarely within Kern County.

²² RE: Order Pursuant to California Water Code Section 13267, issued to Chevron U.S.A. Inc. (“Chevron”), dated April 27, 2016 (“Order”) (June 17, 2016) pp. 2-4, https://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/food_safety/data/chevron/2016_06_27_chevron_13267_resp.pdf.

²³ GSI Environmental, *Final Report: Task 1-Identification of Chemicals of Interest Related to the Reuse of Produced Waters for Agricultural Irrigation of Edible Crops* (March 2020) p. 26, https://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/food_safety/data/task1_report_final.pdf.

²⁴ McMahon, P.B. et al. (2019). *Occurrence and Sources of Radium in Groundwater Associated with Oil Fields in the Southern San Joaquin Valley, California*, <https://pubs.acs.org/doi/10.1021/acs.est.9b02395>.

- Excludes the key finding from Gillespie et al. (2019) that salinity increases are related to the mixing of native groundwater with saline produced water discharged to surface disposal ponds and underground injection wells. Also significant, the Gillespie study found that water with high salinity has filled the vadose zone above the water table at a distance of at least 5,000 feet downgradient of the disposal ponds at the South Belridge oilfield.²⁵
- Fails to identify the 173 chemicals found in oil wastewater to be used for irrigation from Shonkoff et al. (2016) (e.g., ethylbenzene, xylene, and sulfuric acid), and the acute and chronic toxicity of the chemicals discussed in that study.²⁶
- Critiques Anders et al. (2019) as not specific to Kern County, while making the general statement that this and other studies included in the October Draft SREIR “collectively provide additional evidence of the potential of oil and gas activities to violate water quality standards or waste discharge requirements.” October Draft SREIR at 4.9-188. These confusing and conclusory statements do not constitute analysis.
- Ignores the key relevant finding of McMahon et al. (2017) that groundwater samples contained salts and gas from oil field formations. Among other findings, this study determined that “salts and gas from oil-field formations both entered the aquifer near the Lost Hills well. At the Legacy Mound well, the data indicated only salts (no gas) from oil-field formations moved into the aquifer, consistent with a history of the disposal of oil-field produced water near this site. Finally, at the Fruitvale well, the data appeared to indicate that only gas (no salts) from oil-field formations moved into the aquifer.”²⁷

²⁵ Gillespie, J.M. et al. (2019). *Groundwater salinity and the effects of produced water disposal in the Lost Hills–Belridge oil fields, Kern County, California*, <http://archives.datapages.com/data/deg/2019/EG032019/eg18009/eg18009.htm>; see also Cal. Water Bds., *Study Indicates Oilfield Activities Have Increased Groundwater Salinity in Western Kern County* (Sept. 23, 2019), https://www.waterboards.ca.gov/press_room/press_releases/2019/pr09232019_kern_county_oil_and_gas.pdf.

²⁶ Shonkoff, S.B.C. et al., *Preliminary Hazard Assessment of Chemical Additives Used in Oil and Gas Fields that Reuse Their Produced Water for Agricultural Irrigation in The San Joaquin Valley of California*, Technical Report, PSE Healthy Energy (2016) (Shonkoff 2016), <http://www.chc4you.org/wp-content/uploads/2017/01/PSE-Produced-Water-Ag-Disclosures-FINAL.pdf>.

²⁷ McMahon, P.B. et al., *Preliminary Results from Exploratory Sampling of Wells for the California Oil, Gas, and Groundwater Program, 2014-2015*, USGS (2017), <https://pubs.usgs.gov/of/2016/1100/ofr20161100.pdf>.

The County also dismisses other studies, including Kassotis et al. (2014)²⁸ and DiGiulio and Jackson (2016)²⁹, solely on the basis that they are not “geographically or geologically relevant to Kern County.” October Draft SREIR at 4.9-184. However, nothing in CEQA prevents the lead agency from taking into account studies from locations other than the Project Area, and the County has not provided any explanation for why these studies would not be relevant in multiple contexts. Indeed, the New York State Department of Health considered Kassotis et al. (2014) in a 2014 public health review that concluded New York should ban High Volume Hydraulic Fracturing pending further research,³⁰ and an author of DiGiulio and Jackson (2016) has said publicly that their study has implications for California.³¹ The October Draft SREIR fails to even include the key findings of these studies (summarized in our September 16 Letter). The County’s tactics to dismiss or downplay all of the above scientific studies only demonstrate the County’s failure to take reasonable steps to analyze and disclose the Ordinance’s impacts on water quality.

3. *The October Draft SREIR Fails to Adequately Analyze the Potential Impacts of Reusing Oil Wastewater for Irrigation and Domestic Purposes.*

The October Draft SREIR does not meaningfully analyze the amount of oil wastewater that could be re-used for irrigation or domestic purposes over the 20 or more years that the Ordinance would be implemented. The County also does not otherwise conduct an adequate analysis of the impacts of reusing oil wastewater for these purposes. Thus, the County fails to make a good-faith effort to adequately analyze and inform decision makers and the public about a reasonably foreseeable impact, as required by CEQA.³²

a. *The County fails to analyze how much oil wastewater could be available for reuse for irrigation and domestic purposes over the duration of the Ordinance.*

The County argues that the regulatory and market uncertainty of the oil industry makes it infeasible to determine how much oil wastewater could be used for irrigation and other uses

²⁸ Kassotis, C.D., D.E. Tillit, J.W. Davis, A.M. Hormann, Nagel, S.C. (2014), Estrogen and Androgen Receptor Activities of Hydraulic Fracturing Chemicals and Surface and Ground Water in a Drilling-Dense Region. *Endocrinology*, 155(3): 897-907. <https://doi.org/10.1210/en.2013-1697>.

²⁹ DiGiulio, D.C., & Jackson, R.B. (2016). Impact to Underground Sources of Drinking Water and Domestic Wells from Production Well Stimulation and Completion Practices in the Pavillion, Wyoming, Field. *Environmental Science & Technology*. <https://doi.org/10.1021/acs.est.5b04970>.

³⁰ New York State Dept. of Health, *A Public Health Review of High Volume Hydraulic Fracturing for Shale Gas Development* (Dec. 2014) pp. 37-39, https://www.health.ny.gov/press/reports/docs/high_volume_hydraulic_fracturing.pdf.

³¹ Dan Vergano, *Scientists Slam EPA for “Walking Away” from Fracking Pollution Study*, BuzzFeed News (Mar. 29, 2016), <https://www.buzzfeednews.com/article/danvergano/fracking-in-wyoming>.

³² CEQA Guidelines, § 15151; *Cal. Unions for Reliable Energy v. Mojave Desert Air Quality Mgmt. Dist.* (2009) 178 Cal.App.4th 1225, 1231 (CEQA “requires public agencies to consider the reasonably foreseeable environmental effects of their actions”).

during the course of this Ordinance of 20 or more years. October Draft SREIR at 4.9-156. The County asserts, without support, that the amount of treated oil wastewater that could be available for irrigation “will fluctuate with oil production and long-term availability cannot be predicted.” *Id.* at 4.9-156 (quoting the Cawelo Groundwater Sustainability Agency management area plan). To the extent the Ordinance will increase oil production, this statement implies that it is reasonably foreseeable the Ordinance will increase produced water treatment and reuse. The County also identifies “perceived health and safety concerns . . . [that] may further constrain the use of produced water for agriculture in the future” as a potential cause of uncertainty. *Id.* at 4.9-155. The County further states that its 2035 projections on oil and gas water supply and demand in Table 4.9-27 “are not intended to be, and do not provide, predictions of produced water use or other potential methods of produced water disposal.” *Id.* at 4.9-178 to 4.9-179.

However, there is ample information within the October Draft SREIR regarding the likely future generation and re-use of oil wastewater that the County has failed to adequately analyze. In particular, the October Draft SREIR notes that several Groundwater Sustainability Plans (GSPs) and management area plans “contemplate the potential expansion of produced water imported into SGMA-regulated basins to increase available irrigation water supplies, reduce potential groundwater demand, and help achieve SGMA objectives.” *Id.* at 4.9-156; *see also id.* at 4.17-4 (“[T]he importation of treated produced water from oil and gas operations into several SGMA plan areas could increase available water supplies and facilitate SGMA implementation.”). The Arvin-Edison Water Storage District (AEWSD) plans to treat 1,000 AFY of oil wastewater to “develop new supplies.” *Id.* at 4.9-204. This project is “[t]o be implemented upon adoption[] of the AEWSD GSP Chapter and agreement with partnering oil field.”³³ The Cawelo Water District proposes to treat 7,000 to 20,000 AFY of produced water. *Id.*, Appendix D at 33, 35.³⁴

Based on the publicly available information on current generation and uses (as discussed in section V.A, *supra*), as well as the proposed future uses by several districts, the County should be able to estimate how much oil wastewater could be used for irrigation and other purposes, both in general and as a result of the Ordinance. October Draft SREIR at 4.9-204, Appendix D at 32-53.

b. The October Draft SREIR still fails to analyze the impacts of re-using oil wastewater for irrigation and domestic uses.

As noted, increased reuse of produced water is a reasonably foreseeable impact of the Ordinance. The County thus has an obligation to consider the impacts of increased reuse of

³³ Kern Groundwater Authority, Groundwater Sustainability Plan, Table 4-1 at 3 (Jan. 2020).

³⁴ It is unclear whether this proposed use would be on top of the up to 36,000 AFY of oil wastewater it purportedly currently uses for irrigation purposes. *Id.* at 33-34. For more detail on other projects involving produced water, including, for example, a pipeline to import over 3,000 AFY of produced water to the Kern Tulare Water District that is expected to be completed before 2025, see Kern Groundwater Authority, Groundwater Sustainability Plan, Table 4-1.

produced water, and to analyze those impacts that are significant.³⁵ The County fails to meet this obligation.

The October Draft SREIR provides that “there is no evidence to date that permitted produced water reuse for irrigation in the Project Area has caused health or safety issues[.]” October Draft SREIR at 4.17-84. This conclusion is not based on substantial evidence.

In particular, the October Draft SREIR relies on a PowerPoint presentation made in February 2020 by GSI Environmental regarding their progress in conducting a multi-part assessment of the toxicity of chemicals found in oil wastewater that is being used for agricultural irrigation. *Id.* at 4.9-155.³⁶ Instead of relying on a draft study, the County should conduct an analysis of the risks of produced water on human health. Although the October Draft SREIR includes flawed health risk assessments on how air pollution concentrations could impact the health of sensitive receptors (as discussed in our September 16 Letter), the County has not attempted to conduct a health risk assessment on exposure to oil wastewater. Such an assessment could inform decision makers and the public regarding the safety of re-using oil wastewater for irrigation and domestic purposes.

The only scientific study that the County refers to is by Duke University and RTI International (Duke 2020), which the County claims “determined that produced water reuse did not result in salts, metals, and naturally occurring radioactive materials contamination in the CWD [Cawelo Water District].” October Draft SREIR at 4.9-206. Contrary to the County’s characterization, Duke (2020) found elevated levels of arsenic, iron, and manganese in the Cawelo Canal water.³⁷ The study also cautioned that the relatively high boron and sodium concentrations in produced water may pose long-term risks to crop health, and could increase the salinization of underlying groundwater.³⁸

In addition, the County does not analyze other environmental impacts of the treatment and reuse of oil wastewater. Indeed, the County does the opposite by inexplicably striking the only sentence that discusses possible environmental impacts that would result from the treatment

³⁵ *Cal. Unions for Reliable Energy, supra*, 178 Cal.App.4th at p. 1231; see also CEQA Guidelines, § 15126.2(a), (c), Appendix G; see also *id.*, § 15126 (“All phases of a project must be considered when evaluating its impact on the environment”).

³⁶ GSI Environmental, *Assessment of Produced Water for Agricultural Irrigation of Edible Crops Progress Report* (Feb. 25, 2020), https://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/food_safety/meetings/2020_0225_fs_mtg_gsi_pres.pdf.

³⁷ Kondash, A.J. et al., The Impact of Using Low-Saline Oilfield Produced Water for Irrigation on Water and Soil Quality in California, *Science of the Total Environment* 733 (2020), https://pacinst.org/wp-content/uploads/2020/06/Impact-of-using-low-saline-oilfield-produced-water-for-irrigation_PI_June-2020.pdf (Duke 2020); see also Public Meeting of the Food Safety Expert Panel Meeting Video (Feb. 25, 2020) (Minute 16:35), <https://www.youtube.com/watch?v=SoCot5pJTpQ&feature=youtu.be>.

³⁸ Duke (2020).

and distribution of oil wastewater. October Draft SREIR at 4.9-214 (“~~Produced water treatment and distribution could have several significant environmental impacts such as greenhouse gas emissions and concentrated brine disposal that will need to be fully evaluated.~~”).

4. *The October Draft SREIR Fails to Adequately Analyze the Current Baseline Conditions for Oil and Gas Wastewater Disposal Ponds and Underground Injection Wells.*

The October Draft SREIR fails to provide accurate, updated baseline conditions on the numbers, locations, depths, and other environmental conditions related to all of the oil wastewater disposal ponds and wells in the Project Area. It is important for the County to understand and disclose these baseline conditions in order to assess the short and long term impacts from future wastewater disposal and other activities that would result from this Ordinance.³⁹ Instead, the County only offers piecemeal, outdated information that is insufficient to provide decision makers and the public an understandable picture of baseline conditions related to oil wastewater disposal.

First, the County acknowledges that approximately 30,931 AF of oil wastewater was injected into surface ponds and 84,500 AF was injected into Class II wells in the Project Area in 2012. October Draft SREIR at 4.9-28. However, the County fails to incorporate any updated information on the volume of oil wastewater that is currently being disposed in surface ponds or Class II/underground injection control permitted (UIC) wells.

The County references the Kern Groundwater Authority (KGA) GSP, which covers a substantial portion of the Kern County Subbasin but is only one of several GSPs in the entire Project Area, in briefly stating that there are “27 produced water ponds in which crude oil is the primary constituent of concern.” *Id.* at 4.9-40, 4.9-12. The County also states that as of March 2015, the Central Valley Water Board identified 355 inactive ponds, 370 active and permitted ponds, and 208 active ponds that had not received disposal permits in the Project Area. *Id.* at 4.9-111. But the County fails to provide any updated information on the current number and types of wastewater ponds in the entire Project Area. According to the State Water Resources Control Board (SWRCB)’s latest report dated January 31, 2019, the Central Valley region had 561 active ponds and 533 inactive ponds (1,093 in total), and the vast majority of these ponds were located in Kern County.⁴⁰ Most of these ponds (1037 of 1093) were also unlined.⁴¹ In addition, SWRCB’s 2019 report noted that 161 ponds in the Central Valley region were under active

³⁹ CEQA Guidelines, § 15125, subd. (a); *Communities for a Better Environment*, *supra*, 48 Cal.4th at pp. 321-322.

⁴⁰ State Water Resources Control Bd., *Produced Water Ponds Status Report: January 31, 2019*,

https://www.waterboards.ca.gov/water_issues/programs/groundwater/sb4/docs/pwpondsreport_january2019.pdf (SWRCB 2019).

⁴¹ *Id.*

enforcement actions.⁴² The County has not shared additional information on the sizes, locations, and other relevant environmental conditions regarding oil wastewater ponds.

The County also states that within the area covered by the KGA GSP there are 469 UIC wells, based on 2015 data. October Draft SREIR at 4.9-40, 4.9-58. However, the County fails to disclose the total number, location, and other related environmental conditions (e.g., depths, geological conditions) of UIC wells currently within the entire Project Area. Similarly, the October Draft SREIR provides that at least 20 new aquifer exemptions for oil wastewater injection have been approved between 2017 and 2020, including several aquifers in the Project Area. *Id.* at 4.9-40, 4.9-183. Yet the County fails to disclose the total number of exempt aquifers, their locations, and other related environmental conditions (e.g., volume, geological conditions) within the Project Area.

5. *The October Draft SREIR Does Not Analyze the Impacts of Disposing Oil and Gas Wastewater Into Ponds and Underground Injection Wells.*

The County also fails to analyze the potential water quality and related health impacts from the disposal of oil wastewater into wastewater ponds and underground injection wells under this Ordinance.

As discussed in section V.B.2, *supra*, the County's incorporation (and in most cases dismissal) of select studies on the water quality impacts of oil and gas operations does not constitute analysis. Similarly, the County's piecemeal references to potential impacts from various GSPs also does not constitute analysis. *See, e.g.*, October Draft SREIR at 4.9-41 ("Produced water ponds in the oilfields may have released untreated water to the shallow groundwater table in the past." (quoting the Eastside Water Management Area plan)); *id.* at 4.9-59 (while the injection of oil wastewater into Class II wells is limited to strata that are not designated as Underground Sources of Drinking Water (USDWs), "injection infrastructure can leak, resulting in addition of potential COCs [constituents of concern] to USDWs" (quoting the Olcese Water District GSP)). Indeed, the County's own recognition that the water quality impacts of oil wastewater disposal may be significant demonstrates that it must fully disclose and analyze these impacts. Additionally, recent testing of disposal ponds, as required by the Central Valley Water Board, has identified numerous hazardous compounds that could pose a threat to groundwater for municipal and agricultural uses.⁴³

The County should begin an adequate analysis by disclosing the estimated quantity of wastewater that would be disposed of and the expected locations of disposal sites and injection wells that would be used over the course of this Ordinance. In addition, the County should

⁴² *Id.*

⁴³ *See, e.g.*, Central Valley Regional Water Quality Control Bd., *Oil Field Pond 13267 Order Responses, Information Requested by 13267 Order, Lost Hills Oil Field* (2015), https://www.waterboards.ca.gov/centralvalley/water_issues/oil_fields/information/disposal_pond/s/aera_energy/2015_0616_com_lost_hills.pdf.

analyze the types and concentrations of chemicals in the disposed or injected wastewater, and how they could result in environmental and human health impacts.

The County also appears to erroneously rely on oil and gas operators' compliance with regulations by CalGEM to mitigate water quality and health impacts of UIC wells. October Draft SREIR at 4.9-112, 4.9-183, 4.9-188 to 4.9-189, 4.9-193, 4.9-197. The County cannot facilely rely on state regulations, enforcement, or permitting to ensure water quality impacts are less than significant. This reliance is misplaced given the long history of noncompliance, inconsistent permitting, and lack of state enforcement of underground injection of oil wastewater. *See id.* at 4.9-114 to 4.9-116 (citing a 2011 EPA audit report that identified UIC wells that had been permitted in non-exempt aquifers and a February 2015 report by CalGEM listing 2,553 wells in the State that have been injecting oil wastewater into non-exempt aquifers). As discussed at section VIII.B.2, *infra*, a recent California Department of Finance audit shows CalGEM's issues are systemic and ongoing. If the County wishes to rely on CalGEM for mitigation in its Final SREIR, it must analyze CalGEM's practices in light of past and present problems and determine that the agency's unlawful actions are not "likely to recur."⁴⁴

C. The County's Analysis of Water Supply Mitigation Measures Violates CEQA.

CEQA requires the adoption of mitigation measures to avoid or reduce significant environmental damage whenever feasible.⁴⁵ If an EIR identifies significant environmental impacts, the lead agency may approve the project only if the agency makes a finding either that changes have been made to the project to mitigate or avoid the significant impacts, or that mitigation is infeasible and overriding considerations support approval of the project.⁴⁶ The basic purpose of a mitigation measure is to "prevent" significant environmental impacts.⁴⁷ Thus, any feasible "measures must be in place" by "the point where activity will have a significant adverse effect on the environment."⁴⁸

Like the 2015 Final EIR and the August Draft SREIR, the October Draft SREIR anticipates that oil and gas operations permitted by the Ordinance will have a significant adverse impact on already-limited domestic- and irrigation-quality water supplies. October Draft SREIR at 4.17-92. The October Draft SREIR does not revise the existing estimate that, by 2035, oil and gas operations will consume 11,761 acre-feet (3.83 billion gallons) of domestic- and irrigation-

⁴⁴ *East Bay Municipal Utility Dist. v. Dept. of Forestry & Fire Protection* (1996) 43 Cal.App.4th 1113, 1132 (presumption that agency will follow the law is inapplicable where it is likely that unlawful conduct will recur).

⁴⁵ See Pub. Resources Code, §§ 21002, 21081, subd. (a); CEQA Guidelines, § 15002, subds. (a)(2), (3).

⁴⁶ Pub. Resources Code, § 21081.

⁴⁷ CEQA Guidelines, § 15002, subd. (a)(3).

⁴⁸ *POET, LLC v. Cal. Air Resources Bd.* (2013) 218 Cal.App.4th 681, 738, citing Pub. Resources Code, § 21080.5, subd. (d)(3)(A).

quality water each year—enough for over 23,000 households. October Draft SREIR at 4.17-28, 4.9-177, 4.9-177 to 4.9-178 (Table 4.9-27).⁴⁹

The August Draft SREIR declined to adopt any mitigation measures for these water supply impacts, finding any potential measures infeasible. August Draft SREIR at 4.17-80. The October Draft SREIR, by contrast, proposes three mitigation measures relating to these impacts. October Draft SREIR at 4.17-92, -97. These mitigation measures, however, do not render the impacts of the Ordinance less than significant, and indeed they have no impact at all on the County's quantitative estimate of the Ordinance's water supply impacts. *Id.* at 4.17-90, -97.

The County's finding that its water supply impacts cannot be adequately mitigated, in concert with its analysis in support of that finding, does not comply with CEQA. First, the County continues to ignore myriad facially feasible mitigation measures that are available. Second, to the extent the County considers certain mitigation measures and rejects those as infeasible, its analysis is contrary to law and unsupported by substantial evidence. Third, one of the new mitigation measures the County has proposed to adopt, Mitigation Measure 4.17-5, is insufficiently defined and is thus non-compliant with CEQA.

1. The County Has Not Considered Myriad Facially Feasible Mitigation Measures.

As described in the September 16 Letter, there are hundreds of projects and management actions that are discussed in Sustainable Groundwater Management Act (SGMA) plans for the Project Area as methods of helping achieve sustainable groundwater management.⁵⁰ Many of these projects and management actions are, in essence, water supply mitigation measures—they are actions governmental agencies can take to increase groundwater storage. Groundwater Sustainability Agencies (GSAs), however, are not under a legal obligation to achieve sustainable groundwater management before 2040 at the earliest, so many projects and management actions will not be implemented in the immediate future.⁵¹ A large portion of the projects and management actions require funding or other action that is well within the capacity of the County, particularly if industry were to pay fees or undertake mitigation directly. These specific measures have already been vetted by GSAs, and their inclusion in SGMA plans shows they are not “facially infeasible,” as would be required for the County not to consider them.⁵²

As the September 16 Letter noted, the August Draft SREIR failed to propose accelerating, assisting, or expanding upon any of these projects or management actions or

⁴⁹ Cal. Dept. of Conservation, *SB 1281 Water Report Summary* (Aug. 12, 2015) p. 4 (AR034375) (“An acre-foot is equivalent to 325,900 gallons, or roughly enough water to supply two typical households for a year.”).

⁵⁰ September 16 Letter at 26-28.

⁵¹ See Water Code, §§ 10720.7, subd. (a)(2), 10727.2, subd. (b)(1).

⁵² See *Residents Against Specific Plan 380 v. County of Riverside* (2017) 9 Cal.App.5th 941, 970 (“an adequate EIR must respond to specific suggestions for mitigating a significant environmental impact unless the suggested mitigation is facially infeasible”).

something similar, and it provided no explanation for this failure. Indeed, if the GSAs in the area are capable of developing measures that will improve the long-term water budget of the Kern County Subbasin—only one of the subbasins underlying the Project Area—by 421,000 acre-feet per year (AFY) (October Draft SREIR, App. D, at p. 26), it is not reasonable for the County to take the position that it cannot offset a single acre-foot of oil and gas use of domestic- and irrigation-quality water. The County's failure is particularly galling after the GSAs have essentially already done the work of analyzing potential mitigation measures for the County, and given that the County has broader geographical jurisdiction than any GSA and may adopt additional measures in areas of the Project Area that are not covered by a particular GSA.

The County's revised October Draft SREIR addresses, but does not resolve, these concerns. The County discusses certain classes of SGMA projects and, as discussed below, baselessly concludes they are infeasible. The County's obligation, however, is to adopt all feasible mitigation measures.⁵³ The County's narrow focus on certain measures that it views as infeasible does not discharge that obligation. Although not all SGMA projects are good ideas – and particularly those that rely on use of produced water for irrigation purposes are inadvisable for reasons described at section V.B.3, *supra*—the County may not simply throw up its hands and claim all mitigation is infeasible while so many potential projects go unconsidered. For each SGMA project, the County must either (1) provide a “good faith and . . . reasoned analysis” of the suggestion, or (2) explain why the mitigation is infeasible on its face.⁵⁴ To justify its lack of mitigation, the County would have to conclude that there is no SGMA project it could carry out, expand upon, imitate, or at least help fund that would mitigate the Ordinance's water supply impacts.

The County has not made such a finding and cannot credibly do so. In addition to the limited subset of projects that the County does consider, other projects would mitigate some of the Ordinance's water supply impacts. These include, to give just one example, recharge-focused projects such as flood-mitigation construction, many of which are ready to be implemented awaiting only funding.⁵⁵ The County could take these projects on itself, fund them, or adopt additional similar projects. It could even play a valuable role in ensuring that these projects are executed in a way that does not negatively impact groundwater quality. The County is in a uniquely favorable position for mitigating water supply impacts because of the work that has already been done pursuant to SGMA. The County must take advantage of this favorable position and seriously consider whether mitigation measures are feasible to reduce the water supply impacts of this Ordinance.

⁵³ See Pub. Resources Code, §§ 21002, 21081, subd. (a); CEQA Guidelines, § 15002, subds. (a)(2), (3); *Napa Citizens for Honest Government v. Napa County Bd. of Supervisors* (2001) 91 Cal.App.4th 342, 356 (“Public Resources Code section 21002.1, subdivision (b), thus prohibits an agency from approving a project without requiring the implementation of any feasible mitigation measures”).

⁵⁴ *Los Angeles Unified School Dist. v. City of Los Angeles* (1997) 58 Cal.App.4th 1019, 1029.

⁵⁵ See, e.g., Kern Groundwater Authority, Groundwater Sustainability Plan, Table 4-1 (listing a variety of recharge projects to be implemented in the near term).

At the absolute least, if the County can find no specific project or projects to support, the County is obliged to consider simply paying the GSAs its “fair share” to mitigate the Ordinance’s harms over time.⁵⁶ Because SGMA requires GSAs to avoid chronic lowering of groundwater levels, the GSAs will ultimately have to take steps to mitigate the Ordinance’s impacts on groundwater if the Ordinance does not do so itself.⁵⁷ Under such circumstances, making voluntary payments to the GSAs may be an appropriate mitigation measure that a lead agency must consider.⁵⁸ We note, however, that such mitigation may not be timely, and that targeted measures to ensure timely mitigation are legally required if feasible.⁵⁹

The County’s justifications for neglecting to mitigate water supply impacts are unpersuasive. One reason the County provides is that “[t]here is no assurance that any specific SGMA Project, including expanded produced water treatment and reuse discussed above, will result in water supply increases or demand reductions that would predictably reduce or avoid Project groundwater impacts.” October Draft SREIR at 4.17-88. There are two problems with this conclusion. First, it is not supported by substantial evidence. As estimates from GSAs demonstrate, the vast majority of SGMA projects will reliably increase groundwater supplies, and thus “will result in water supply increases or demand reductions that would predictably reduce or avoid Project groundwater impacts.”⁶⁰ Projects that increase recharge, to give only one example of a class of SGMA projects that the County ignores entirely, would increase groundwater supplies, and thus would reduce the Ordinance’s negative impact on groundwater supplies. Second, a mitigation measure need not be certain to have a specific result in order to be required under CEQA, rather there must be “a reasonable plan for mitigation.”⁶¹ Here, as the County says repeatedly, SGMA projects have been developed by teams of experts under a legal edict to increase groundwater supplies. *E.g.*, October Draft SREIR at 4.9-15, 4.19-213 to 4.19-214. These projects and the SGMA plans in general constitute “a reasonable plan for mitigation.”

The County also continues to rely on SGMA (and on its own decision to affirmatively withdraw from the SGMA process) to avoid its obligation to mitigate water supply impacts under

⁵⁶ CEQA Guidelines, § 15130, subdivision (a)(3).

⁵⁷ Water Code, §§ 10721, subd. (u)-(x)(1), 10733.

⁵⁸ Cf. *City of San Diego v. Bd. of Trustees of Cal. State Univ.* (2015) 61 Cal.4th 945; *City of Marina v. Bd. of Trustees of Cal. State Univ.* (2006) 39 Cal.4th 341.

⁵⁹ *POET, LLC, supra*, 218 Cal.App.4th at p. 738 (“Once the project reaches the point where activity will have a significant adverse effect on the environment, the mitigation measures must be in place”).

⁶⁰ See, e.g., Kern Groundwater Authority, Groundwater Sustainability Plan, Table 4-1 (providing estimates of the impact of each project); see also Buena Vista Water Storage District GSA Final Groundwater Sustainability Plan, § 7 (Jan. 2020); Henry Miller Water District Groundwater Sustainability Plan, § 4 (Jan. 29, 2020); Kern Groundwater Authority Groundwater Sustainability Plan, § 4 (Jan. 2020); Kern River Groundwater Sustainability Plan, § 7 (Jan. 2020); Olcese Groundwater Sustainability Plan, §§ 17-18 (Jan. 2020); Cuyama Basin Groundwater Sustainability Plan, § 7 (Dec. 2019); Tulare Lake Subbasin Groundwater Sustainability Plan, § 6 (Jan. 2020); Delano-Earlimart Irrigation District Groundwater Sustainability Plan, § 5 (Jan. 2020).

⁶¹ *City of Marina, supra*, 39 Cal.4th at p. 365.

CEQA. *Id.* at 4.9-21, 4.17-83. As described in the September 16 Letter, this reliance is contrary to law, and nothing in the County's revisions to the Draft SREIR changes that.⁶² For instance, the County says that it "has no authority to directly regulate or control groundwater pumping, and the SGMA provides such authority only to duly-formed GSAs that adopt a GSP in accordance with the Act." October Draft SREIR at 4.9-212. This unsupported statement is legally incorrect,⁶³ and moreover the majority of potential mitigation measures would not require such direct regulation or control of groundwater pumping. The County further highlights, as a justification for declining to adopt mitigation measures, that SGMA implementation is a dynamic 20-year process and that it is not clear how it will unfold or what projects will be worth implementing. October Draft SREIR at 4.9-212 to -213. Although this is true, it overlooks three facts. First, it does nothing to change the County's obligation *under CEQA* to mitigate the Ordinance's own groundwater impacts under a shorter timeframe. Second, there are many SGMA projects that are either being implemented now or that will be implemented upon receipt of funding—particularly many projects focusing on groundwater recharge.⁶⁴ Supporting these projects or developing additional similar projects does not implicate any of the concerns the County identifies. Third, GSAs are on a 20-year timeline, so it makes sense that they are not implementing all their projects right away.⁶⁵ There is no inherent inconsistency with SGMA in the County mitigating a comparatively small amount of water supply impacts in the short term. In fact, such mitigation is consistent with SGMA because it avoids adding to the GSAs' already-considerable burden to halt chronic overdraft within 20 years.

2. *The County's Justifications for Not Adopting Specific Mitigation Measures Are Unsupported by Substantial Evidence and Contrary to Law.*

The County dismisses certain of the potential mitigation measures discussed in the September 16 Letter, but its factual conclusions are unsupported by substantial evidence and its legal conclusions are generally incorrect.

a. *Restricting oil and gas drilling or reducing use of municipal and industrial water for oil and gas purposes*

In addition to those discussed in the August Draft SREIR and the September 16 Letter, the County relies on a couple of additional justifications for declining to either limit the amount

⁶² September 16 Letter at 21-23.

⁶³ *Allegretti & Co. v. County of Imperial* (2006) 138 Cal.App.4th 1261, 1283 ("general police powers of counties permit them to adopt ordinances for the conservation of groundwater when such ordinances do not conflict with any general law of the State").

⁶⁴ See, e.g., Kern Groundwater Authority, Groundwater Sustainability Plan, at Table 4-1.

⁶⁵ See Water Code, §§ 10720.7, subd. (a)(2), 10727.2, subd. (b)(1); see also Kern County Subbasin Groundwater Sustainability Plans, *First Annual Report: Water Year 2019* (Apr. 1, 2020) pp. 30-63 (updating status of plan implementation and certain projects and management actions).

of oil and gas activity in the project area or reduce or ban the use of higher quality water supplies for oil and gas activities.⁶⁶

First, the County says it “has no jurisdiction over groundwater allocations.” October Draft SREIR at 4.9-209. As discussed above, this is legally incorrect.⁶⁷

Second, the County says that “the limitation of oil and gas activity is inconsistent with one of the Project’s primary purposes, which is to encourage and expand one of the County’s largest and most essential industries with a ministerial permitting program.” October Draft SREIR at 4.17-84 to 4.17-85. Focusing exclusively on the growth of the oil and gas industry, however, is improperly narrow: essentially any requirement to reduce environmental and public health impacts could be construed as at odds with this purported project objective, as most such requirements impose some sort of burden on industry.⁶⁸ Notably, the stated project purpose directly conflicts with state regulators’ goal to reduce oil and gas activities in California (October Draft SREIR at 4.17-84), as well as with the County’s stated aim to “[e]nsure the protection of environmental resources by emphasizing the . . . promotion of long-term water conservation strategies that will ensure the quality and adequacy of surge and groundwater supplies” (*id.* at 1-11).

Third, the County says that “simply reducing the number of oil and gas wells drilled may not actually reduce groundwater used” because the water may simply be allocated elsewhere. October Draft SREIR at 4.9-209. This conclusion is unsupported by citation or evidence, contrary to common sense, and inconsistent with the County’s existing finding that oil and gas use of groundwater will have significant and unavoidable impacts on water supplies. *Id.* at 4.9-215. Although the County’s conclusion is unsupportable in a vacuum, it is particularly so against the backdrop of SGMA. SGMA will require the basins in the Project Area to improve on existing groundwater retention by hundreds of thousands of AFY in the next twenty years. *Id.* at 4.17-18 (estimating net loss to storage in Project Area due to groundwater pumping of 325,000 AFY). This will be no small feat, as the County must recognize because it has concluded that it cannot mitigate a single AF of the Ordinance’s water supply impacts. The idea that a voluntary cut in water use for oil and gas purposes would simply result in an increase in use elsewhere is not plausible—the GSAs in the Project Area must cut usage substantially if they are to comply with SGMA.

Fourth, the County maintains its previous position that reducing oil and gas use of municipal and industrial (M&I) water, such as by increasing use of produced and reclaimed water for oil and gas purposes, is not a predictable way to limit water supply impacts because of

⁶⁶ Commenters responded to the County’s reasoning in the August Draft SREIR, which remains inadequate to the extent the County continues to rely on it, at pages 24 to 28 of the September 16 Letter. For additional discussion of the County’s concerns about takings liability, see section VII.A.4, *infra*.

⁶⁷ *Allegretti & Co.*, *supra*, 138 Cal.App.4th at p. 1283.

⁶⁸ Cf. *North Coast Rivers Alliance v. Kawamura* (2016) 243 Cal.App.4th 647, 668-669 (an EIR violates CEQA if it defines project objectives so narrowly as to preclude any alternatives at all).

technological and other feasibility issues. October Draft SREIR at 4.9-209. This conclusion is speculative and unsupported. The evidence shows it is feasible for operators to replace M&I water with treated oil wastewater. Water districts have been treating and re-using oil wastewater for over the past two decades, and they have specific plans to continue treating and re-using oil wastewater for the foreseeable future. According to Table 9.2-27, the 2035 demand for M&I water is relatively low (11,761 AF) compared to the volume of wastewater that may be generated (321,894 AF). *Id.* at 4.9-178, 179 & 4.9-198. Given the high volume of oil wastewater that would likely be treated in the future, it is unreasonable for the County to assert that it would not be feasible for operators to replace their M&I water use with treated oil wastewater. Indeed, the only new evidence of infeasibility that the County presents in the October Draft SREIR is a discussion in the Westside District Water Authority management area plan of how its produced water—which is of particularly poor quality—may or may not be suitable for treatment in the coming years. *Id.* at 4.9-210 to 4.9-211. This evidence is not relevant, as there are fourteen other management areas and four other GSAs within the Kern County Subbasin alone that could provide higher quality produced and/or reclaimed water. *Id.* at 4.17-77. Moreover, the County continues to withhold documents associated with the implementation of Mitigation Measures 4.17-2 through 4.17-4 from the 2015 Final EIR, which sought to decrease municipal and industrial water use in the oil and gas industry. The County should release these documents, as requested in the September 16 Letter.⁶⁹

b. Demand reduction measures

The County declines to adopt demand reduction measures, as suggested in the September 16 Letter. All its justifications for doing so are either incorrect or unsupported.

First, the County notes that GSAs “are already acquiring land and working with agricultural land owners to ensure the preservation of productive land,” and it concludes that “CEQA does not require that a Lead Agency create new programs that are already being implemented by other regulatory agencies.” October Draft SREIR at 4.9-213. The problem with the County’s analysis is that the Ordinance is causing additional groundwater impacts above and beyond what the GSAs would otherwise have to plan for and remediate, and the County has an obligation under CEQA to mitigate those impacts. The fact that there are existing demand reduction programs has no impact on the County’s obligations under CEQA—that fact only makes the County’s job easier by providing a straightforward mechanism by which the County

⁶⁹ September 16 Letter at 70.

can fulfill its obligations, perhaps by contributing financially to the existing programs or expanding upon them. The County does not consider these options.⁷⁰

The County also says that demand reduction is contrary to GSAs' stated objectives. October Draft SREIR at 4.9-213. As such, the County is claiming that it cannot implement demand reduction because, on the one hand, GSAs are already doing it, and, on the other hand, it is inconsistent with GSAs' goals. These two positions are internally inconsistent. Regardless, GSAs' stated objectives are irrelevant to the County's CEQA obligations. Furthermore, nothing is stopping the County from consulting with a GSA on any demand reduction measure it implements, or assisting either financially or otherwise on a GSA's project. Doing so would ameliorate any risk of a conflict with a GSA's goals.

Last, the County states that "it is not clear that fallowing and similar demand reduction measures by curtailing Project Area water use by itself would reduce water demand without additional restrictions [because] Growers that have not ceased operations, for example, may be induced to increase irrigation or plant more remunerative crops with higher water demands in response to the fallowing of adjacent formerly operating farmland." *Id.* This claim is not supported by citation or evidence and is contrary to both common sense and the GSAs' recognition that demand reduction will reliably result in reduced water use.⁷¹

3. Mitigation Measure 4.17-5 Is Not Adequately Defined.

Mitigation Measure 4.17-5 requires applicants to pay a small fee, which will be deposited into a Disadvantaged Community Drinking Water Grant Fund. October Draft SREIR at 4.17-97. Kern County Public Health will then administer the selection and awarding of grants for projects relating to water system improvements in disadvantaged communities in the Valley portion of the County. *Ibid.*⁷²

⁷⁰ The County also says that "higher-quality water supplies, including groundwater, that are used in oil operations and bought from a water district already include the costs of implementation of any fallowing program," and that "CEQA does not give a Lead Agency the ability to impose costs that are already being assessed for the same purpose." October Draft SREIR at 4.9-213. The County does not suggest, however, that these costs mitigate the Ordinance's fair share of groundwater impacts. For that reason, the costs have nothing to do with the County's duty to adopt all feasible mitigation measures, and the costs do not prevent the County from imposing any additional fees as necessary for mitigation.

⁷¹ See, e.g., Kern Groundwater Authority, Groundwater Sustainability Plan, at Table 4-1 at 3 (Voluntary Land Conversion projected to preserve 2,000 AFY of groundwater), p. 11 (water charge expected to result in fallowing and demand reduction leading to preservation of 4,000 AFY), p. 15 (voluntary rotational fallowing expected to save over 3 AFY per acre).

⁷² Although the County should clarify this in its Final SREIR, we assume the County is using the definition of "disadvantaged community" in Water Code section 79505.5, subdivision (a), under which "Disadvantaged community" means a community with an annual median household income that is less than 80 percent of the statewide annual median household income."

This fund requires more definition to be a legally valid mitigation measure. A mitigation measure based on a fair-share fee must satisfy at least two requirements: first, it must represent a “fair share of a mitigation measure or measures designed to alleviate [a] cumulative impact,”⁷³ and, second, it must be “part of a reasonable, enforceable plan or program that is sufficiently tied to the actual mitigation of the . . . impacts at issue.”⁷⁴ This mitigation measure fulfills neither requirement.

First, the County presents no evidence that the approximately \$460,000 that it estimates the Mitigation Measure will raise annually constitutes its fair share of any measure to mitigate cumulative harms to disadvantaged communities as a result of water supply impacts. There is no calculation of how much total money is required to mitigate cumulative harms, or of what share of cumulative harms will be a result of the Ordinance. Likewise, there is no broader “measure[] designed to alleviate the cumulative impact”—the County does not discuss any broader effort to alleviate drinking water issues of which its grant will be a part.⁷⁵ It is dubious that this amount will meaningfully mitigate drinking water issues in disadvantaged communities, as the Water Foundation recently estimated that it would cost up to \$359 million to pay for mitigation measures to maintain and restore the use of existing drinking water wells in the San Joaquin Valley.⁷⁶

Second, and relatedly, there is no plan at all for use of these funds. The County suspects they will be used to match larger efforts, but there is no discussion about what those efforts may be or of who will be carrying them out. Without a “plan or program” for funding to go to, there can be no assurance that the funds will effectively mitigate harms as intended.⁷⁷ Moreover, there can be no telling when any harms will be mitigated, and whether any lag in mitigating harms is “reasonable,” as is legally required.⁷⁸ The County must develop or explain some “plan or program” of which the funding will be a part.

D. The October Draft SREIR Is Inconsistent with the Kern County General Plan and Thus Violates the Planning and Zoning Law.

The September 16 Letter explained why the August Draft SREIR’s proposal to use significant amounts of water without any plan for mitigation violates California’s Planning and

⁷³ CEQA Guidelines, § 15130, subd. (a)(3).

⁷⁴ *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173, 1189.

⁷⁵ CEQA Guidelines, § 15130, subd. (a)(3).

⁷⁶ Water Foundation, *Groundwater Management and Safe Drinking Water in the San Joaquin Valley* (June 2020) p. 13, <https://waterfdn.org/wp-content/uploads/2020/06/Groundwater-Management-and-Safe-Drinking-Water-in-the-San-Joaquin-Valley-Brief-6-2020.pdf>.

⁷⁷ *Anderson First Coalition*, *supra*, 130 Cal.App.4th at 1189.

⁷⁸ *King & Gardiner Farms, LLC v. County of Kern* (Case No. F077656, Feb. 25, 2020), Slip Opinion at 67.

Zoning Law.⁷⁹ The October Draft SREIR makes no meaningful changes in this regard, and thus it still violates the Planning and Zoning Law.

VI. The County's Greenhouse Gas Mitigation Measures Are Inadequate.

The County has not changed its greenhouse gas mitigation measures to reflect new legal authority clarifying a lead agency's duty under CEQA to fully articulate and adopt the mechanisms by which greenhouse gas emissions will be reduced.⁸⁰

In *Golden Door*, the court invalidated a similar mitigation measure that relied on greenhouse gas offsets contained in an EIR because it did not include protocols or guidelines that would ensure such offsets would be real, permanent, quantifiable, verifiable, and additional. Here, for emissions that fall outside of California's cap and trade regime, the County provides no restrictions for offsets, stating they may be purchased from the California Air Pollution Control Officers Association (CAPCOA) Exchange Register or unnamed "third party" registries. October Draft SREIR 4.18-36 (Mitigation Measure 4.7-4). However, CAPCOA does not list any offset projects available to reduce greenhouse gas emissions⁸¹ and the County makes no effort to demonstrate that adequate credits would be available. Furthermore, the County does not prevent offsets from occurring anywhere in the world, making verification and compliance with California's requirements infeasible, as pointed out in *Golden Door*.⁸² Finally, *Golden Door* invalidated the greenhouse gas mitigation measure at issue in that case because its lack of fixed standards constituted improperly deferred mitigation.⁸³ The greenhouse gas mitigation measures here are legally deficient for the same reasons.

VII. The October Draft SREIR's Alternatives Analysis Impermissibly Rejects Feasible Alternatives.

A. The County's Analysis of the New 2,500-Foot Setback Alternative Is Deficient.

In the September 16 Letter, Commenters explained in detail why the County's consideration of a 2,500-foot setback—framed in the August Draft SREIR as the "Fewer Wells Within the Project Footprint Alternative with a 2,500-foot Setback" alternative (August Draft SREIR at 6.6.5)—was unlawfully deficient. The heart of the matter was the fact that the County had failed to consider any of the field studies from the last decade, and in particular the last five years, showing an association between proximity to oil and gas production wells and various health impacts, from cancer to asthma to poor birth outcomes.⁸⁴ These studies very consistently

⁷⁹ September 16 Letter at 31-32.

⁸⁰ See *Golden Door Properties, LLC v. County of San Diego* (2020) 50 Cal.App.5th 467, 511-525.

⁸¹ Cal. Air Pollution Control Officers Assn., *Greenhouse Gas Reduction Exchange*, www.ghgrx.org (last visited Dec. 7, 2020).

⁸² 50 Cal.App.5th at 517.

⁸³ *Id.* at 518-525.

⁸⁴ September 16 Letter at 33-57.

documented significant health risks at distances far exceeding the 210-foot default setback proposed by the County.

As discussed below, the County's attempt to paper over this deficiency in the October Draft SREIR does not succeed. Essentially, the County's response is to simply spit back the list of studies cited by Commenters without providing any meaningful consideration or analysis of them in context. The County does not attempt to evaluate the adequacy of its minimal proposed setbacks—the 210-foot default setback and 300-foot setback from schools—in light of the studies, or consider how the studies' repeated showing of significant impacts and increased risk at a distance of 2,500 feet or more from drilling activity should bear on the choice of a setback distance. Neither does the County show that the scientific conclusions in the dozens of cited peer-reviewed articles should be rejected (because it would have no valid reason for doing so), or provide contrary study results (because hardly any exist). Rather, it picks at the overwhelming mountain of damning research with tiny, meaningless commentary—e.g., reciting the researchers' unremarkable notes about small gaps or uncertainties in their dataset, or noting that the research does not prove things it was never designed to prove.

The County additionally tries but fails to meaningfully supplement its legal analysis of the takings implications of a larger setback—declining once again to explain why its 210-foot default setback passes constitutional muster but a larger setback would not—and also provides no rational analysis of the disproportionate impact of drilling without a 2,500-foot setback on vulnerable populations.

1. The County Fails to Meaningfully Consider Extensive Science Documenting Increased Health Risks Associated with Proximity to Oil and Gas Development.

The most prominent concern expressed by Commenters concerning the County's "Fewer Wells Within the Project Footprint Alternative with a 2,500-foot Setback" alternative proposed in the August Draft SREIR was the County's failure to consider the large number of field studies conducted in recent years demonstrating an association between proximity to drilling operations and air pollution and observed health impacts. Commenters noted that a number of such studies existed in 2015 and had been called to the attention of the County, but that many more additional peer-reviewed studies had been produced since that time—providing new and important analysis concerning, e.g., additional categories of impacts and different distances from drilling operations. Specifically, Commenters identified the following post-2015 studies demonstrating increased risks:

- Five field studies showing an association between oil and gas production and measured air pollution (September 16 Letter at 36-37)
- Five literature reviews, in which the large majority of reviewed studies showed adverse health risks were associated with proximity to oil and gas drilling operations; plus three

additional relevant compilations of unconventional oil production health risks (*Id.* at 38-42)

- Ten studies showing an association between a proximity to oil and gas production activities and poor birth outcomes (preterm birth, fetal death, congenital defects, etc.) (*Id.* at 42-43)
- Four studies showing an association between proximity to oil and gas production activities and asthma and other respiratory health risks (*Id.* at 44)
- One study showing an association between proximity to oil and gas production activities and cardiovascular health risks, which confirms the results of five other earlier studies identifying such an association (*Id.* at 44-45)
- Two studies showing an association between oil and gas production activities and a heightened presence of endocrine-disrupting chemicals (*Id.* at 45)
- Five studies showing an association between proximity to oil and gas production activities and unhealthy noise levels (*Id.* at 46)
- Three studies showing an association between proximity to oil and gas production activities and mental health risks (*Id.* at 47)
- Seven studies showing an association between proximity to oil and gas production operations and a risk of a variety of other health problems (including, e.g., cancer, dermatological issues, eye and throat irritation, and fatigue) (*Id.* at 47-48)

The County provides no rational response to these studies in its October Draft SREIR. While it includes a short paragraph summarizing each study identified by Commenters in its discussion of air quality impacts (October Draft SREIR at 4.3-28 to 4.3-41), it offers no meaningful discussion of these studies in connection with its proposed Alternative 7, a 2,500-foot setback. At bare minimum, a rational discussion of these studies would have reviewed the distances at which risks were identified in the studies as a basis for determining whether a larger setback than 210 feet (or 300 feet for schools) would mitigate health risk.⁸⁵ It would also have determined whether there is any countervailing body of scientific literature casting doubt on the drumbeat of risk findings at distances far greater than the County's proposed setbacks—there is not, but it behooved the County to make that determination in support of a decision to stick with its 210-foot default setback.

⁸⁵ As noted in section IV, *supra*, the County has also failed to provide a scientific rationale for the difference between the default setback of 210 feet and the setback of 300 feet applicable to schools.

Rather than taking either of those basic analytical steps, the discussion of Alternative 7 merely dismisses the studies in two baseless ways.

First, the County asserts that the health risk from oil and gas operations “is not new information and these potential impacts were incorporated into the analysis and mitigation measures in Section 4.3 in the 2015 FEIR.” October Draft SREIR at 6-36. This assertion is facially nonsensical. In the first instance, all of the studies listed above that Commenters presented *post-date the 2015 FEIR*. What is significant here, and deserved rational consideration, is not that scientists were aware in 2015 that health risk from oil and gas operations existed, but that the body of knowledge describing that risk—both its nature and the distances at which it has been measured—has exploded since 2015, dwarfing the body of work that existed when the Ordinance was first promulgated in 2015 and adding significant new dimensions to it. This includes studies showing new and greater adverse impacts to public health, as well as additional meta-analyses and a delphi analysis that confirms and strengthens the overwhelming weight of the scientific consensus that even relatively distant proximity to oil and gas drilling operations is associated with significant health impacts.

Thus, writing off the entire body of post-2015 field research as “nothing new,” without more, is tantamount to disregarding it entirely, which CEQA does not allow. As discussed further in section VIII, *infra*, a supplemental EIR is required to incorporate and evaluate new information that becomes available where such information “was not known and could not have been known at the time the environmental impact report was certified as complete.”⁸⁶ In particular, such new information must be fully considered where (A) the project will have one or more significant effects not previously discussed; (B) significant effects even if previously examined will be substantially more severe; (C) previously considered mitigation measures or alternatives that were deemed not feasible would in fact be feasible, would substantially reduce one or more significant effects of the project, and yet the project proponents have declined to adopt such; or (D) “considerably different” mitigation measures or alternatives than previously analyzed would substantially reduce one or more significant effects of the project, but the project proponents have declined to adopt such.⁸⁷ As discussed in more depth below and in the September 16 Letter, the new research dimensions and conclusions reflected in the post-2015 studies clearly expand the nature and severity of the health effects relevant to establishing setback distances and mitigation measures. The post-2015 studies provide a solid consensus on adverse birth outcomes, which previously were the subject of only a limited initial study,⁸⁸ as well as extensive new data on such unstudied impacts as cardiovascular disease, asthma and respiratory health, mental health, the prevalence of endocrine-disrupting chemicals, and other subjects.

⁸⁶ Pub. Resources Code, § 21166.

⁸⁷ CEQA Guidelines, § 15162(a)(3)(A) to (D).

⁸⁸ McKenzie, L. M., Guo, R., Witter, R. Z., Savitz, D. A., Newman, L. S., & Adgate, J. L. (2014). Birth Outcomes and Maternal Residential Proximity to Natural Gas Development in Rural Colorado. *Environmental Health Perspectives*, 122(4). <https://doi.org/10.1289/ehp.1306722> (McKenzie et al. 2014); see Shonkoff and Hill (2019) at 12-13.

Second, the single-paragraph summaries of the studies appear (without exactly so saying) to be dismissing every last one of them from consideration merely by including a sentence or two referencing some type of limitation of the study. To begin with, this approach does not even come near qualifying as actual analysis or consideration of the studies—it is little more than a rote exercise in digging out a line or two from a study author’s own definition of the scope of their study and presenting it as though it were a critique. As a substantive matter, to the extent the County intends its brief references to limitations as grounds to ignore the studies entirely, it is in error. The identified limitations are in reality merely descriptors of the specific topics the researchers had set out to study, and what data they were able to amass in so doing. And in almost all cases, notwithstanding the inherent bounds of the study design and available information, the researchers identified an association between drilling and adverse health impacts that should be of concern to responsible regulators.

The only information the County provides in addition to its cursory summaries—and its even more cursory reference to purported study limitations—is a non-peer reviewed memorandum by a retired epidemiologist, David Garabrant, which addresses specifically the Gonzalez et al. (2020)⁸⁹ and Tran et al. (2020)⁹⁰ studies performed in California. October Draft SREIR at 4.3-30.⁹¹ As discussed below, however, the Garabrant Memorandum is merely a slightly more elaborate version of the same fundamentally mistaken conflation of study design parameters with research deficiencies.

The County’s cursory listing and implicit dismissal of the studies, set forth at October Draft SREIR at 4.3-28 to 4.3-41, mostly fall into a few general categories, none of which in any way support failure to consider the study at all.⁹²

⁸⁹ Gonzalez, D.J.X., Sherris, A.R., Yang, W., Stevenson, D.K., Padula, A.M., Baiocchi, M., Burkee, M., Cullen, M.R., Shaw, G.M. (2020). Oil and gas production and spontaneous preterm birth in the San Joaquin Valley, CA. *Environmental Epidemiology*, 4(4). https://journals.lww.com/environepidem/Fulltext/2020/08000/Oil_and_gas_production_and_spontaneous_preterm.1.aspx?context=LatestArticles.

⁹⁰ Tran, K.V., Casey, J.A., Cushing, L.J., Morello-Frosch, R. (2020). Residential Proximity to Oil and Gas Development and Birth Outcomes in California: A Retrospective Cohort Study of 2006–2015 Births. *Environmental Health Perspectives*, 128(6). <https://doi.org/10.1289/EHP5842>.

⁹¹ September 16 Letter at 35, nn.126, 127. Mr. Garabrant was commissioned to write the memorandum by Alston & Bird, a law firm representing California Resources Corporation that is also advocating against the 2,500-foot setback established in Ventura County. See October Draft SREIR, Appendix G, Part 1 (Letter from M. Wickersham, Alston & Bird, to Chair Kelly Long and Members of the Ventura County Board of Supervisors, dated Sept. 14, 2020).

⁹² Oddly, and reflective of the lack of meaningful analysis of the health studies by the County, the October Draft SREIR at 4.3-32 lists the post-2015 literature reviews under the heading “Reviews of the 2015 California Council on Science and Technology Report.”

a. Mistaking identification of study scope for a research flaw

For a large fraction of the studies, the one or two sentences of apparent critique are actually merely a description of the well-defined and limited task the researchers set out to accomplish. Science—and in particular public health science—does not involve studying every conceivable dimension of a problem in a single study. Rather, researchers take a methodical approach in which they identify a specific aspect of the issue around which they can design a concrete study.

With respect to a significant fraction of the studies, the County dismissed them with a passing reference to the fact that the study did not prove “causation,” or measure “actual exposure.” This statement, although styled as a critique, is actually merely a description of the type of study that was done, which in no way diminishes its import. The cited studies are, in large part, epidemiological assessments, whose goal is to determine whether a particular health impact is statistically associated, or correlated, with proximity to upstream oil and gas development activities. Identification of the exact mechanism and pathway that is causing the risk is a very different type of possible study, that might be done (or might have already been done) by researchers with different focus and expertise. For instance, if an epidemiological study determines that poor birth outcomes are statistically correlated with proximity to drilling operations, a different study might in principle seek to identify the presence of a particular air toxin known to cause such effects; and yet another study might assess whether the pregnant women being studied were actually coming into contact with that toxin.

However, the existence of the association between proximity to oil and gas drilling and higher incidence of adverse health effects is sufficient basis for policymakers to act, without knowing the details of the causation mechanism. Indeed, in many cases, the causation mechanism is well known—e.g., it is known (as explained in October Draft SREIR section 4.3) that certain chemicals emitted in the drilling process can cause certain negative health effects such as cancer or cardiovascular disease. What had not initially been as well known is whether those outcomes are in fact occurring in proximity to drilling. The results of the epidemiological studies thus essentially confirmed what could previously have been inferred: that proximity to oil and gas operations, which emit certain chemicals known to be harmful, in fact results in the adverse health outcomes that those chemicals are known to cause.

In any case, in most public health regulatory contexts, studies showing increased health, safety, or environmental risks are enough to preclude such approval even if the exact physiological cause or mechanism driving the risk is not scientifically proven. This is discussed in the attached expert memorandum of Tanja Srebotnjak, PhD (Addendum C), which is incorporated into these comments. The County must respond to these comments specifically and in their entirety, including the Srebotnjak Memorandum.

Thus, it is of no particular import—and certainly is not a basis for dismissing a study from consideration—where the County states that a study showing elevated health risks did not

“directly measure . . . environmental impacts via monitoring” (October Draft SREIR at 4.3-29), “did not assess actual exposure” (*id.*), “did not show a causal relationship between birth outcomes and proximity to oil and gas activity” (*id.* at 4.3-30), is “observational and cannot determine causal relationships between exposure and health effects (*id.* at 4.3-31), was designed such that “no assessment of causation was conducted” (*id.* at 4.3-32), “is not an exposure assessment and thus does not represent a causal relationship” (*id.* at 4.3-34), was “constrained to focus on potential exposure to pollution . . . rather than actual exposure that could be measured with personal monitoring devices” (*id.* at 4.3-35), “did not include an exposure assessment” (*id.*), “did not measure exposure to any agent or compound associated with known health impacts” (*id.* at 4.3-36), left the “biological mechanisms underlying exposure . . . and cardiovascular disease . . . unclear” (*id.* at 4.3-37), or does not provide “definitive proof of cause and effect” (*id.* at 4.3-40). These are merely descriptions of the type of study the researchers chose to pursue, and a responsible explanation of what the research was designed to address.

In many other ways as well, the County mistakes researchers’ accurate descriptions of their studies for identification of problems. For instance, Lewis et al. (2018),⁹³ was a “delphi” study whose design involves surveying a panel of experts in search of consensus. In view of that study design, it is not a critique or admission for the researchers to note that the results “reflect the expert opinion of one panel.” (89% of the panel’s experts agreed that a minimum setback of 1 to 1.25 miles was an acceptable protective minimum; and the County does not point to any other panel of researchers that has concluded otherwise.) Similarly, the 2019 report by the Los Angeles Department of Public Works did indeed note that it was not “presenting empirical evidence correlating oil and gas operations within the City of Los Angeles to widespread negative health impacts” (October Draft SREIR at 4.3-32), because the report did not purport to measure health “impacts,” but rather identify and assess health risks. The neighborhood health investigations cited (along with much more data) in the Los Angeles County Department of Public Health risk study are by definition “anecdotal” because they are conducted in response to public complaints about particular facilities. *Id.* at 4.3-31. The County makes a point of noting that two studies demonstrating a correlation between certain air pollutants and cardiovascular impacts were performed in the context of traffic-related emissions—but in fact, these two studies (Ye 2017 and Bard 2014) are in the record because they were cited by a researcher studying oil and gas emissions as evidence that her results were consistent with results in other contexts. *Id.* at 4.3-37.⁹⁴ And the fact that some researchers recommended exposure assessment studies as a follow-up to their work (October Draft SREIR at 4.3-35)⁹⁵ did not inhibit them from concluding that there is an association between higher incidence of preterm birth and proximity to oil and gas development.

The analysis presented in the Garabrant Memorandum makes more or less these same errors, presented in longer form. Garabrant defines the criteria for an exposure assessment, but

⁹³ September 16 Letter at 39, n.145.

⁹⁴ September 16 Letter at 44, citing McKenzie et al. (2018b).

⁹⁵ September 16 Letter at 43, citing Whitworth et al. (2017) and (2018).

the Gonzalez et al. (2020) and Tran et al. (2020) studies—like most of the other cited studies—do not fall into that category of research. These two studies were designed to determine whether an association exists between proximity to drilling operations and the adverse birth outcomes at issue—not to assess or measure the exposure of the women studied to any particular chemical. Thus, while it is true as a factual matter that “Neither of the studies at issue (Gonzalez, 2020; Tran, 2020) has adequate information on emissions from OGD sites, with reliable temporal information, to provide any reliable estimate of any study participant’s exposure at any point during gestation,”⁹⁶ that is because neither study is in any way grounded in that type of information. Garabrant also complains that the authors “did not explain” the cause of certain counter-intuitive results.⁹⁷ But once again, the studies were not designed to explain the association results at all. They were designed to identify associations, or lack thereof—which, as explained above, is critically important information for policymaking purposes. Garabrant’s critique on this score amounts to a concern that the observational results of the studies did not turn out as he speculates they should have. A more complete discussion of the flaws in the Garabrant Memorandum is set forth in the Srebotnjak Memorandum (Addendum C).

b. Unsupported rejection of non-California data

The County dismisses the large majority of the studies because they were performed outside of California. October Draft SREIR at 4.3-28 to 4.3-29. On its face, that approach is dubious given that the more recently performed California studies have consistently replicated the results of studies in other states concerning the association between proximity to oil and gas operations and health impacts. But the argument fails for additional reasons reflected in the record.

The County cites the California Council on Science and Technology’s 2015 study⁹⁸ as a basis for arguing that conditions in California diminish the relevance of the cited studies. October Draft SREIR at 4.3-29. In fact, CCST 2015 was the first of several analyses to describe why differences among state drilling practices need *not* rule out the relevance of out-of-state studies to California. CCST 2015 noted the relative paucity of California-specific data at that time (several years before the Tran 2020, Gonzalez 2020, Shonkoff and Hill 2019, Los Angeles County 2018, and other more recent studies), but observed that the out-of-state studies generally do not differentiate the association of health risks between hydraulic fracturing and oil and gas development overall. Thus, it concluded in general terms that “the same health impacts that have been found near oil development enabled by hydraulic fracturing may exist in any oil and gas development.”⁹⁹

⁹⁶ Garabrant Memorandum at 3.

⁹⁷ Garabrant Memorandum at 5.

⁹⁸ Cal. Council on Science and Technology, *An Independent Scientific Assessment of Well Stimulation in California* (July 2015), <https://ccst.us/wp-content/uploads/2015SB4summary.pdf> (CCST 2015).

⁹⁹ CCST 2015, *Chapter 6, Potential Impacts of Well Stimulation on Human Health in California* at 374, <https://ccst.us/wp-content/uploads/160708-sb4-vol-II-6-1.pdf>.

As discussed in the September 16 Letter on page 35, Shonkoff and Hill (2019) addressed the question of out-of-state applicability in greater depth, in analysis concerning specifically the Los Angeles region. The researchers unpacked the similarities and differences in the various states' circumstances, including comparisons of petroleum geology, type of oil and gas development, differences in air pollution monitoring, types of pollutants addressed, and density of oil and gas development. They concluded, "While the magnitude of health risks and impacts associated with oil and gas development in the City of Los Angeles is not extensively characterized there are enough similarities between the types of operations studied outside of California to operations located in the Los Angeles Basin that this body of literature should be carefully considered by regulators and policy decisionmakers."¹⁰⁰

Moreover, both the CCST 2015 report and Shonkoff and Hill (2019) identified an additional risk factor in California as compared to Colorado, Pennsylvania, and Texas, which is that in parts of California, the population density around oil and gas wells is much higher. This means that the "intake fraction" of air emissions, meaning the amount that people actually breathe in, is higher as well.¹⁰¹

The County's only substantive argument as to why the out-of-state studies are not applicable to California is that the shorter and near-vertical wells in California take less time to drill, and therefore emit less air pollution. October Draft SREIR at 4.3-29. But the County does not cite any authority for its generic argument that California wells "tend" to be shorter and closer to vertical. *Id.* To the contrary, Appendix U to the 2015 Final EIR indicates highly variable well depths for both conventional drilling and Monterey Shale Source Rocks in Kern County, with maximum depths (13,869 and 14,000 feet, respectively) that are comparable to or exceed the drilling depths identified for all other states and plays identified in the report (6,500 to 14,000 feet). 2015 Final EIR, Appendix U at 10-12 (Table 1).

Further, Kern County has a significant number of non-vertical wells. According to CalGEM's data, of the 147,000 wells drilled in Kern County to date, 24,654 wells were "directional"—roughly 1 in 6.¹⁰² In more recent years, the proportion of directional and horizontal drilling has increased considerably. According to the October Draft SREIR, a dataset of 9,803 wells drilled from 2000 to 2020 by the California Resources Corporation showed that the majority of wells were drilled directionally (46%) or horizontally (10%), as opposed to vertically. *Id.* at 4.2-36. And more recent wells in the County have utilized directional and horizontal drilling even more heavily: a 2020 dataset submitted to the County of wells drilled

¹⁰⁰ Shonkoff, S.B.C. & Hill, L.A.L. (2019). *Human health and oil and gas development: A review of the peer-reviewed literature and assessment of applicability to the City of Los Angeles* at 39. <https://www.psehealthyenergy.org/wp-content/uploads/2019/08/Literature-Review.pdf> (Shonkoff and Hill 2019). Please note that at the September 16 Letter at 35, Commenters reference Shonkoff and Hill (2019), but inadvertently cite Shonkoff et al. (2019) instead in footnote 129.

¹⁰¹ CCST 2015, Chapter 6 at 411 (referencing Chapter 3); Shonkoff and Hill (2019) at 44-48.

¹⁰² CalGEM, "AllWells" database (current through Oct. 10, 2020), <https://gis.conservation.ca.gov/portal/home/item.html?id=0d30c4d9ac8f4f84a53a145e7d68eb6b>.

county-wide indicates that 76% were drilled directionally and an additional 7% were drilled horizontally; only 17% were drilled vertically. *Id.* at 4.2-37.

Even if the County is correct that California reservoirs “tend” to be shallower and drilling distances “tend” to be shorter and closer to vertical (October Draft SREIR at 4.3-29), it cannot credibly dismiss each and every out-of-state study without assessing whether deeper or more horizontal wells were, in fact, the subject of those out-of-state studies. It is very unlikely that all of the wells studied in other states are deeper than those in Kern County because “wells in the Central Subarea average 10,414 feet.” *Id.* at 3-47.

The County also fails to evaluate why drilling in California based on its geology would not result in *greater* drilling emissions than in other states. If it is true that operators in California drill fewer horizontal wells than other states, the relatively low proportion of horizontal wells would require operators to drill more wells or more densely packed wells to access the same area of hydrocarbons. Consequently, the County’s assertion that Kern County’s wells are restricted to mostly vertical wells may mean that operators must drill more wells and emit more pollution.

Relatedly, the County’s simplistic assertion fails to account for the degree of state regulation that might influence air pollution emissions. By the County’s own analysis, oil and gas drilling in California is chronically under-regulated compared to other states. Appendix U to the 2015 Final EIR (at 21) compared regulatory elements for California to regulations in Arkansas, Colorado, Louisiana, Nebraska, New York, Ohio, Pennsylvania, North Dakota, Texas, West Virginia, and Wyoming and concluded that “[o]f the regulatory elements that were compared for each of the states, California has the lowest number of ‘command-and-control’ and has the highest number of ‘no evidence of regulation found.’”

The October Draft SREIR’s attempt to paint all drilling across the County with a broad brush also fails because well depth varies across oil fields. As acknowledged by the October Draft SREIR (at 3-44), “the depth to formation varies throughout the Project Area.” *Accord id.* at 3-47 (stating “the depth of each well varies” and “some wells may take less than 24 hours to drill, while some wells in deeper formations may take more than 60 days to drill”). The County’s attempt to analyze all oil development across 2.3 million acres of Kern County requires the analysis to account for greater emissions for fields that require deeper or directional drilling. Without distinguishing these projects from others, the emissions analysis cannot adequately inform the public about the impacts of drilling emissions.

In any event, Shonkoff and Hill (2019) casts severe doubt on the County’s proposition that studies of hydraulic fracturing are inapplicable to California given the purportedly shorter drilling time necessary for California wells. Shonkoff and Hill (2019) points out that the emissions of concern are inherent to all phases of production activity:

While the CCST SB 4 Report (2015) focused largely on issues of well stimulation (e.g. hydraulic fracturing, matrix acidizing and acid fracturing), a significant

overarching conclusion of the report was that the majority of impacts associated with well stimulation are attributable to impacts of oil and gas development more generally. For example, air pollutants—such as benzene—may be emitted to the atmosphere during the relatively brief amount of time that hydraulic fracturing takes place, but emissions also occur, often in higher mass and rate during other phases of oil and gas development. Moreover, while benzene is sometimes reported as used as an additive in hydraulic fracturing fluids, emissions of benzene occur throughout the oil and gas development process due to the fact that the compound is co-produced with oil and gas and so the technological approach to hydrocarbon extraction—be it via hydraulic fracturing, steam injection or waterflooding—may not be as important from a toxic air pollutant exposure perspective.¹⁰³

Published, peer reviewed studies also dispute the October Draft SREIR's assertion that drilling time and associated diesel particulate matter emissions are the main drivers of health impacts—an assertion that is premised on the County's flawed multi-well health risk assessment and a mischaracterization of the efficacy of Mitigation Measure 4.3-8. October Draft SREIR at 1-35, 4.3-29, 6-36. A systematic literature review of hazardous air pollutants conducted by Garcia-Gonzales et al. (2019) demonstrated that harmful pollutants are emitted over the entire course of upstream oil and gas development, with numerous pollutants (e.g., benzene, ethylbenzene, *n*-Hexane, hydrogen sulfide, naphthalene, polycyclic organic matter, toluene, and xylenes) detected during multiple stages of drilling.¹⁰⁴ The conclusion reached by Garcia-Gonzales et al. (2019), and echoed by the October Draft SREIR, is that “the production phase has the potential to emit the highest concentrations and most varied mixture of [hazardous air pollutants] over the longest time period.” October Draft SREIR at 4.3-30, citing Garcia-Gonzalez et al. (2019).

Notably, in contrast to drilling activities that typically last for a matter of days only (one to 60 days in Kern County, October Draft SREIR at 3-47), production activities sometimes continue “for decades.”¹⁰⁵

c. Identification of non-significant limitations

The County's cursory dismissal of the health studies frequently relies on references to the study authors' acknowledgment of gaps in the available data—essentially pulling bits and pieces from the standard section toward the end of each paper describing data limitations and recommendations for further research. However, the County makes no attempt to actually explain the significance of these minor data gaps to the result. That is, not once does it make any effort to show that the small piece of the data puzzle that the researchers identified as unavailable

¹⁰³ Shonkoff and Hill (2019) at 7.

¹⁰⁴ Garcia-Gonzales, D., Shonkoff, S., Hays, J., Jerrett, M. (2019). Hazardous air pollutants associated with upstream oil and natural gas development: an examination of the current peer-reviewed literature. *Annual Review of Public Health*, 40:283-304 at 290, figure 2.

¹⁰⁵ Garcia-Gonzales et al. (2019) at 292.

(e.g., data on whether women moved between conception and delivery in Gonzalez et al. 2020) in any way discredits the result.

In fact, although the County does not note it, the researchers in some cases indicated that the incomplete data could have the effect of biasing their result toward the null—that is, the bias would be toward *not* finding any risk association, rather than finding one.¹⁰⁶ Similarly, while the County calls attention to the cited need for additional information regarding acute and chronic toxicity of the chemicals of concern addressed in Shonkoff et al. (2019),¹⁰⁷ the lack of such data suggests that actual risks may be much *worse* than what the study was able to assess with limited toxicological data.

In any event, a section describing data or methodological limitations is a normal part of an epidemiological research paper—and not, as the County’s approach would imply, an acknowledgment that the study results should be disregarded entirely. Indeed, a recent paper available via the National Institutes of Health explains that “[r]esearchers have an obligation to the academic community to present complete and honest limitations of a presented study,” and sets forth the manner in which they should be described—including, as the authors have generally done in the cited papers, the implications of the limitations.¹⁰⁸ Indeed, as the authors observe, the larger purpose of clearly explaining study limitations is to help ensure that the research fully supports the larger scholarly process.¹⁰⁹ The County’s practice of using thoughtfully explained study limitations as a basis for ignoring the research altogether, and failing to provide a complete and honest representation of the studies’ significance, undercuts that larger purpose.

d. False assertions in the Garabrant Memorandum regarding confounding factors

The Garabrant Memorandum asserts that the Tran and Gonzalez studies failed to consider various confounding factors—i.e., factors that might impact the results of the research but are not the subject of it (e.g., smoking habits, income level, etc.). Dr. Garabrant makes no effort to describe the significance of the researchers’ inability to control for a particular factor (all of the epidemiological research addressed a set of confounding factors they had selected to analyze).

¹⁰⁶ See, e.g., Gonzalez et al. (2020) (“We were not able to account for women who moved between conception and delivery or for exposure at sites other than the residence, which could result in exposure misclassification. This misclassification could bias the results toward the null if moving was not related to preterm birth status”); McKenzie (2018a) (“Our findings are based on ambient air samples collected in the summer of 2014 that may not capture temporal variations in NMHC concentrations associated with O&G activities. . . . Existing studies suggest that winter levels of these pollutants are higher.”).

¹⁰⁷ October Draft SREIR at 4.3-33, citing Shonkoff et al. (2019) at 1.

¹⁰⁸ Ross, P. T., & Bibler Zaidi, N. L. (2019). Limited by our limitations. *Perspectives on medical education*, 8(4), 261-264. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6684501/>. (Ross and Zaidi 2019).

¹⁰⁹ Ross and Zaidi (2019) at 261.

For instance, he offers no basis to even speculate that pregnant women located closer to production wells are more likely to be predisposed genetically to birth complications.

0061-83
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More importantly, however, the Garabrant Memorandum is wrong in its assertions regarding confounding factors that were not considered—a somewhat surprising error given that the researchers explicitly described their consideration of that factor in the paper. Garabrant states that “neither study [Tran et al. 2020 or Gonzalez et al. 2020] assessed confounding due to smoking, drug use, alcohol, infections during pregnancy, pharmaceuticals, malnutrition, poverty, lack of access to health care, maternal disease, pregnancy complications, or genetics.” However, each of the papers specifically describes the researchers’ consideration of some of these identified factors.¹¹⁰ In particular, Gonzalez et al. (2020) considered potential contributors to preterm birth, including prenatal care access and neighborhood-level socioeconomic factors, but found that adjusting for these factors did not change the overall conclusions. The researchers also performed a sensitivity analysis to investigate whether traffic-related air pollutants account for the observed association between oil/gas and preterm birth, and found that their conclusions were not changed by accounting for traffic.¹¹¹

0061-84

2. The County’s Assertion that a Setback Will Exacerbate Drilling-Related Air Emissions Lacks Rational Basis.

0061-85

The County asserts in its discussion of Alternative 7 that a 2,500-foot setback would not only fail to improve air quality, but “may result in higher criteria pollutant and greenhouse gas emissions than would the project due to the fact that more horizontal drilling may occur if such a setback were in place County-wide.” October Draft SREIR at 6-37.

This argument fails in the first instance because the County provides no basis for it. The County’s argument is bare speculation, uninformed by citation or quantitative analysis, that if a 2,500-foot setback were in place, “a producer may need to drill further to reach a reservoir through horizontal drilling.” October SREIR at 6-38. The County provides no data concerning the frequency with which this is likely to happen, whether its smaller setback in place since 2015 has had such an impact, and what analytical basis might exist to conclude that a larger setback would result in significantly more horizontal drilling than the current setback.

In any event, as explained above, the County is incorrect in its unsourced statements that air emissions are primarily correlated with wellbore distance.¹¹²

Finally, it bears note that the County’s assertion, which rests on the assumption that a 2,500-foot setback will significantly increase horizontal drilling and resulting air pollution, is in

0061-86

¹¹⁰ See Tran et al. (2020) (describing sensitivity analysis for a suite of factors that include smoking); Gonzalez et al. (2020) (describing how models were adjusted to address exposure to smoking as a variable, as well as other confounding factors).

¹¹¹ See also Srebotnjak Memorandum (Addendum C) at 5-6.

¹¹² See section VII.A.1.b, *supra*.

unresolved tension with the assertion made with respect to Alternative 7's relationship with project objectives: "[m]any oil and gas reservoirs in California are faulted and discontinuous laterally with stack pay potential and are thus not conducive to a horizontal well geometry," such that distance drilling would be infeasible in enough cases that the County could face significant takings liability. October Draft SREIR at 6-43 to 6-44. That assertion is likewise unsupported by citation, quantification, or analysis.

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3. Field Studies Are an Essential Complement to Health Risk Assessment Modeling.

0061-87

As discussed in the attached Srebotnjak Memorandum (Addendum C), field studies play a critical role in assessing health risks that complements the role of data modeling in essential ways. As the Centers for Disease Control has stated, "[a] primary goal of field epidemiology is to guide, as quickly as possible, the processes of selecting and implementing interventions to lessen or prevent illness or death when such problems arise." These field studies are essential to evaluating health risks independent of modeled health risk analysis, not only because they "carry direct, immediate, and persistent value" in understanding health impacts, but also because they provide valuable "ground truth" data that is necessary to calibrate and validate a data modeling approach.¹¹³ Accordingly, the County's exclusive reliance on its health risk assessment is problematic not only due to the deep flaws in that assessment,¹¹⁴ but also because modeled risk assessment data of that nature can and should be supplemented and informed by field study data.

4. The County Has Failed to Evaluate the Risk of Takings Claims in a Rational Manner.

0061-88

With respect to Alternative 7, the County expands somewhat on the threadbare takings discussion presented with respect to Alternative 6.6.5 (Fewer Wells within the Project Footprint Alternative with a 2,500-foot Setback from Sensitive Receptors). Most of the discussion of takings is a boilerplate explanation of the generally applicable legal principles. October Draft SREIR at 6-43 to 6-44. This discussion is largely unaccompanied by application of these general principles to conditions in Kern County, save for a reference to a study by the oil industry lobbying organization Western States Petroleum Association, which purported to quantify the impact of a setback on "existing active and in-progress" wells. *Id.* at 6-44. This data is not relevant to Alternative 7, which proposes a setback applicable to new wells permitted within the County, not extinguishment of authority to continue use of existing or in-progress wells.

The County concludes, based on its very general recitation of legal principles, that "excessive setback conditions or other restrictions precluding drilling would subject the County to serious allegations of takings liability under California law." *Id.* There are two major flaws in this conclusion, referenced in the September 16 Letter and not corrected by the expanded takings discussion in the October Draft SREIR.

¹¹³ Addendum C at 8-9.

¹¹⁴ See September 16 Letter at 19.

First, the County's generalities ignore the analysis and caselaw presented in the September 16 Letter demonstrating that, notwithstanding the general principles of takings law reiterated by the County, those principles do not by their existence render setbacks a taking. As explained in those Comments, "California courts have long rejected claims by property and mineral rights owners that zoning ordinances prohibiting oil and gas drilling effect a taking of private property."¹¹⁵ As discussed therein, California courts have held that local measures restricting or banning oil drilling to protect the environment and public health are a legitimate exercise of the police power.¹¹⁶ The County similarly fails to rationally evaluate available means to limit takings liability.

Second, the County's analysis fails to explain why a 2,500-foot setback would be constitutionally impermissible while smaller setbacks in existence elsewhere—and, in the case of Ventura County, equal setbacks—would not. The September 16 Letter presented extensive examples of setbacks in place in other jurisdictions, of varying distances up to 4,000 feet. The Comments cited two Texas municipalities with 1,500-foot setbacks, the 1,000-foot Colorado setback, the 500-foot North Dakota setback, and numerous California municipal setbacks, ranging from 300 feet to 1,320 feet.¹¹⁷ The October Draft SREIR did not discuss these examples.

In this regard, it bears note that the County also fails to explain why setbacks larger than those proposed in the Ordinance would effect a taking under the general law it cites, but proffers no such concern or analysis regarding the limits on agricultural acreage disturbance set forth in Mitigation Measure 4.2-1. There is no reason why the general arguments put forth by the County as to why setbacks could effect a taking—i.e., that some resource owners may be inhibited from accessing those resources by a land use restriction—should not apply equally to the acreage disturbance restrictions. As discussed in the September 16 Letter, however, neither 2,500-foot setbacks nor acreage disturbance restrictions are takings in this context because abating a nuisance does not effect a taking, and the County acknowledges a number of significant and unavoidable impacts that squarely qualify the projects authorized under the Ordinance as nuisances.¹¹⁸

The County's one response to the demonstrated prevalence of setbacks greater—often far greater—than 210 feet is this single sentence: "While other jurisdictions may have adopted varying distances of setback, excessive distances, such as in Ventura County, are subject to litigation and their legal viability is questionable, without supporting environmental and science-based public review and findings of fact." October Draft SREIR at 6-44. Nowhere does the County explain what constitutes an "excessive distance" for constitutional purposes, and what the basis for such a determination might be. It alleges that Ventura County's setback is "subject

¹¹⁵ September 16 Letter at 24.

¹¹⁶ *Id.*

¹¹⁷ *Id.* at 52-53.

¹¹⁸ September 16 Letter at 24, citing *Keystone Bituminous Coal Assn. v. DeBenedictis* (1987) 480 U.S. 470.

to litigation,” but fails to explain whether and why such litigation has merit or could be successfully defended against; and why only slightly smaller setbacks than Ventura County’s have *not* been subject to successful litigation.

The County cites a policy analysis, Fry (2013), for the proposition that “setbacks are political compromises.” October Draft SREIR at 6-34. However, the analysis dates from prior to the development of the large body of science affirming the association between proximity to oil and gas development and health impacts—it even predates CCST 2015, which was able to gather only a small handful of such studies. Substantial basis now exists—which was not at all the case in 2013—for establishing setbacks on a basis other than “political compromise.” Indeed, a report on risks associated with oil and gas activity prepared by the Los Angeles Department of Public Works¹¹⁹ was generated for the express purpose of determining “[w]hether, what kind, and what distance a setback and potential mitigation measures from sensitive receptors should be established.”¹²⁰

The County’s position is further weakened by events postdating the September 16 Letter. In November, the Los Angeles City Attorney determined that the City has legal authority to impose a 1,500-foot setback. The City Attorney specifically noted that a setback ordinance “will likely result in litigation,” but stated that the City “will defend in court a carefully crafted setback ordinance backed up by a strong administrative record.”¹²¹ On December 1, the Los Angeles City Council’s Energy, Climate Change and Environmental Justice Committee passed a resolution going a step further and calling for an ordinance making oil and gas drilling a non-conforming use throughout all of Los Angeles.¹²² And in September, the Colorado Oil and Gas Conservation Commission approved a statewide 2,000-foot setback.¹²³

Finally, the County fails to adequately consider possible means to mitigate the risk of a successful takings claim. Once again, the County cursorily brushes off the deliberate steps taken by Culver City to minimize takings liability risk via an amortization study with a cursory and

¹¹⁹ See September 16 Letter at 37, n.136.

¹²⁰ City of Los Angeles Dept. of Public Works, Office of Petroleum and Natural Gas Administration and Safety, *Oil and Gas Health Report* (2019) (OPNGAS Report) p. 1, http://clkrep.lacity.org/online/docs/2017/17-0447_rpt_BPW_07-29-2019.pdf.

¹²¹ Sammy Roth, *Boiling Point: Los Angeles Can Restrict Oil and Gas Drilling With Buffer Zones, City Attorney Says*, Los Angeles Times (Nov. 19, 2020), <https://www.latimes.com/environment/newsletter/2020-11-19/los-angeles-oil-gas-drilling-buffer-zones-boiling-point>.

¹²² Nathan Solis, *Los Angeles Moves Closer to Forcing Oil & Gas Drillers Out of City*, Courthouse News Service (Dec. 1, 2020), <https://www.courthousenews.com/los-angeles-moves-closer-to-forcing-oil-gas-drillers-out-of-city/>.

¹²³ Colorado Oil and Gas Conservation Commission Final 600 Series Rules, <https://drive.google.com/drive/u/1/folders/1RP61i1LMjRr7DvtCfsHjyfbk0Ac6fWr8>; see Mark Jaffe, *Colorado Regulators Back 2,000-Foot Setback For New Oil And Gas Drilling In “Paradigm Shift,”* Colorado Sun (Sept. 9, 2020), <https://coloradosun.com/2020/09/09/colorado-oil-gas-setback-2000-feet/>.

unsupported assertion that the City’s phase-out of oil production “would almost certainly be subject to legal challenge”; and asserts—again without analytical basis—that the principles driving Culver City’s approach cannot be applied to the County. The County fails to sufficiently consider its own ability to avoid liability by including administrative procedures to approve exemptions in rare cases in which an operator is able to show it has been subject to an unconstitutional taking.¹²⁴ In this regard, the County cites the outcome in the challenge to Monterey County’s Measure Z, but improperly universalizes the holding in that case to effectively preclude the effectiveness of *any* takings risk mitigation measures. The court’s holding—which as a superior court decision cannot be cited by other courts as authority¹²⁵—applied to a single operator in a unique circumstance and *expressly denied* every other oil company takings claim (and also upheld a county-wide ban on fracking). An appeal is pending and may overturn the takings holding for the operator, whereas oil companies that were unsuccessful in their challenge did not appeal. In any case, Measure Z did not involve a setback, and the County fails to explain Measure Z’s relevance.

0061-95
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B. The County Did Not Alter the Majority of Its Alternatives Analyses.

Since the August Draft SREIR, the County has not revised its discussions of several alternatives, including the drilling ban on agriculturally productive lands alternative, the drilling ban on all lands alternative, the zero net gain alternative, the no-project alternative, the conditional use permit alternative, the reduced ground disturbance alternative, and the no hydraulic fracturing alternative. The September 16 Letter described why these analyses were inadequate, and the analyses remain inadequate for the same reasons.¹²⁶ In addition, the County rejects the no hydraulic fracturing alternative based on the unsupported assertion that “a local government’s legal authority to regulate every step in the hydraulic fracturing process is the subject of legal disputes currently pending in certain California courts.” October Draft SREIR at 6-28. The County does not cite any litigation on this issue, and it is unclear on what basis the County makes this assertion. *Chevron et al. v. County of Monterey*¹²⁷ did litigate the issue, and the Superior Court *upheld* Measure Z’s local county-wide fracking ban. Plaintiffs did not appeal the decision, so the legal dispute is not “currently pending.”

0061-96

VIII. The October Draft SREIR Continues to Fail to Consider and Incorporate New Information Pertaining to Other Environmental Impacts.

0061-97

A subsequent or supplemental EIR must consider new information when one or more of three events occur: “(a) Substantial changes are proposed in the project which will require major

¹²⁴ See *San Mateo County Coastal Landowners’ Assn. v. County of San Mateo* (1995) 38 Cal.App.4th 523, 547.

¹²⁵ Trial court opinions “are not . . . citable under the Rules of Court.” *County of San Bernardino v. Cohen* (2015) 242 Cal.App.4th 803, 816 (citing Cal. Rule of Court 8.1115).

¹²⁶ September 16 Letter at 57-64.

¹²⁷ Monterey Cty. Super. Ct., Case No. 16CV003978 (and consolidated cases), Final Statement of Decision (filed Jan. 25, 2018).

revisions of the environmental impact report[;] (b) Substantial changes occur with respect to the circumstances under which the project is being undertaken which will require major revisions in the environmental impact report[; or] (c) New information, which was not known and could not have been known at the time the environmental impact report was certified as complete, becomes available.”¹²⁸

As detailed in our comments on the August Draft SREIR, the circumstances under which the Ordinance is being undertaken have substantially changed in the time since the Board adopted the Ordinance and certified the Final EIR in November 2015. In addition, new scientific evidence has demonstrated the impacts of oil and gas activity to be substantially greater than acknowledged in the 2015 Final EIR. The County largely ignored Commenters’ serious concerns, however, arbitrarily incorporating new information selectively in the October Draft SREIR while ignoring other information with little or no explanation.

Furthermore, new scientific evidence has continued to emerge in the last several months on the significant impacts of oil and gas activity. Consequently, the County must reevaluate and incorporate the new research and studies in order to properly comply with CEQA.

A. The October Draft SREIR’s Incorporation and Omission of New Information Is Arbitrary.

The County has arbitrarily incorporated some new information that has become available since the 2015 Final EIR while refusing to consider other recent information. The October Draft SREIR’s Bibliography lists several studies and references that have been published since 2015 (*see generally* October Draft SREIR at ch. 10), demonstrating that the County is aware of and able to incorporate new information when it chooses to do so. However, the County fails to incorporate all significant information that has become available since 2015 or explain why it omitted key references. As a result, the October Draft SREIR presents a skewed and misleading description of the Ordinance and its impacts, in which some areas have been updated to incorporate new information, while other areas are stuck in time in 2015.

For example, the County claims it updated its analysis to “address technical reports submitted in response to the earlier SREIR (August 2020).” October Draft SREIR at 2-5. Based on this updated analysis, the County claims it conducted a “comprehensive review” of the mitigation measures and modified some of them. *Id.* at 2-6. The County also incorporated certain new information related to impacts to water supply, PM_{2.5} emissions, agricultural land conversion, and noise impacts. Yet the County entirely ignored other areas where significant new information has also become available.

For instance, the County ignores Pennsylvania’s extensive grand jury report assessing the impacts to the state from the growing unconventional oil and gas industry, as well as a detailed

¹²⁸ Pub. Resources Code, § 21166.

letter from the California Attorney General's Office laying out the City of Arvin's legal authority to adopt setback provisions for oil and gas sites.¹²⁹ The County also left out significant studies and articles, including recent reports from the Institute for Energy Economics and Financial Analysis, discussing the current serious economic downturn in the oil and gas industry, the collapsing prices for oil, and the historically low demand for oil and gas that seriously call into question the justification for fast-tracking thousands of new well permit approvals.¹³⁰ Despite the ongoing impacts of the COVID-19 pandemic, the County ignores several studies that found exposure to higher amounts of air pollution also increases COVID-19 mortality.¹³¹ Importantly, the County excludes studies and reports discussing the growing crisis of orphan and idle wells in the state, including a 2020 report on orphan wells from the California Council on Science and Technology.¹³²

In other instances, the County does include new information in its Bibliography, but fails to apply that information in other relevant areas of its analysis. For example, the County indicates that it has incorporated the California Department of Fish and Wildlife's spill report on the 2019 Cymric oil spill (October Draft SREIR at 10-19), citing the study in its updated hydrology analysis. The same report also notes multiple bird fatalities caused by the Cymric spill. Despite this new information regarding the adverse impacts to biological resources, the County failed to update its biological resources analysis to reflect these impacts. Elsewhere, the County refers to new studies to update the October Draft SREIR's air quality analysis, but fails to include the same studies' discussion on climate change to update the SREIR's greenhouse gas

¹²⁹ Office of the Atty. Gen. for the Commonwealth of Pa., *Report 1 of the Forty-Third Statewide Investigating Grand Jury* (June 25, 2020) p. 94, <https://www.attorneygeneral.gov/wpcontent/uploads/2020/06/FINAL-fracking-report-w-responses-with-page-number-V2.pdf>; Cal. Dept. of Justice, Office of the Atty. Gen., letter to the City of Arvin re Arvin's proposed setback ordinance (June 8, 2018) (explaining the city's authority to adopt zoning and setback provisions for oil and gas sites).

¹³⁰ See, e.g., Inst. for Energy Economics & Fin. Analysis (IEEFA), *Bankruptcies in Fracking Sector Mount in 2019: E&P Companies' Debt of \$26 Billion Doubled Over Previous Year* (Jan. 2020), <https://ieefa.org/wp-content/uploads/2020/01/Bankruptcies-in-Fracking-Sector-Mount-in-2019-January-2020.pdf>; IEEFA, *IEEFA Update: Oil and Gas Stocks Place Dead Last in 2019, Again, Despite 30% Price Rise* (Jan. 9, 2020), <https://ieefa.org/ieefa-update-oil-and-gasstocks-place-dead-last-in-2019-again-despite-30-price-rise/>; see also September 16 Letter at 65-68.

¹³¹ See, e.g. Tian, H. et al., *Risk of COVID-19 is Associated with Long-term Exposure to Air Pollution*, medRxiv (Apr. 24, 2020), <https://doi.org/10.1101/2020.04.21.20073700>; Zhu, Y., Association Between Short-Term Exposure to Air Pollution and COVID-19 Infection: Evidence from China, 727 *Science of the Total Environment* (Apr. 2020), <https://doi.org/10.1016/j.scitotenv.2020.138704>; Petroni, M., et al. Hazardous Air Pollutant Exposure As a Contributing Factor to COVID-19 Mortality in the United States, *Environ. Res. Lett.*, Vol. 15, no. 9 (Sept. 11, 2020), <https://iopscience.iop.org/article/10.1088/1748-9326/abaf86>.

¹³² Cal. Council on Science & Technology (CCST), *Orphan Wells in California: An Initial Assessment of the State's Potential Liabilities to Plug and Decommission Orphan Oil and Gas Wells* (Jan. 23, 2020), <https://ccst.us/wp-content/uploads/CCST-Orphan-Wells-in-California-An-Initial-Assessment.pdf>; see also September 16 Letter at 78-83.

analysis. *See* October Draft SREIR at 10-8 (citing Concerned Health Professionals of New York and Physicians for Social Responsibility. 2019). In addition, the County included a statement from the Center for Biological Diversity’s website to update its analysis on grazing lands (*id.* at 10-3), but solely for the purpose of mischaracterizing the statement to fit the County’s unsupported narrative.¹³³

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At the same time, the County ignores other sources regarding oil and gas operations’ serious adverse impacts, and improperly dismisses new studies that demonstrate the harms caused by oil and gas activity on important issues like water quality. For instance, the October Draft SREIR states that a U.S. Geological Survey (USGS) study of groundwater impacts in the Fruitvale, Lost Hills, and South Belridge oil fields is “not specific to Kern County”—even though all three fields are in fact located in Kern County. October Draft SREIR at 4.9-187. The County improperly dismisses this and other studies on the assertion they do not change the 2015 Final EIR’s conclusion that oil and gas activity will have a less than significant impact on water resources after mitigation. Yet the USGS study, for example, revealed widespread contamination and merits additional analysis and mitigation measures.

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The County also ignores the damning evidence of pervasive spills, leaks, and serious accidents due to oil and gas activity that have occurred in Kern County. Beyond merely acknowledging that a number of surface expressions have occurred, the analysis has not changed. In fact, the October Draft SREIR incredibly maintains that “fugitive leaks and/or other scenarios prohibited by law would [] not be included in an HRA as they are speculative and not reasonably foreseeable” (October Draft SREIR, Appendix B-1 at 6), despite extensive evidence to the contrary provided in our September 16 Letter. CEQA requires the County to first conduct a “thorough investigation” of these impacts, however, before writing them off as “speculative.”¹³⁴ The October Draft SREIR demonstrably fails to conduct such an investigation. Moreover, numerous examples of spills, leaks, and serious accidents included in the September 16 Letter demonstrate these incidents continue to recur in Kern County and are therefore far from speculative.¹³⁵ The County is well aware of the scope, location, and types of spills and accidents.

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Finally, the October 2 Letter raised concerns about the August Draft SREIR’s reliance on the San Joaquin Valley Unified Air Pollution Control District (District)’s emission reduction credits (ERCs) for offsetting emissions associated with the Ordinance.¹³⁶ The October Draft

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¹³³ See section VII.A.1, *supra*, for additional examples of where the County summarily recited certain new information and studies provided by Commenters regarding the health risks associated with proximity to drilling activity, without properly incorporating that information into its analysis of the proposed Alternative 7 2,500-foot setback.

¹³⁴ CEQA Guidelines, § 15145.

¹³⁵ See *Environmental Council of Sac. v. City of Sac.* (2006) 142 Cal.App.4th 1018, 1032 (environmental analysis of future development projects speculative where “[f]ar too little is known about the scope, the location, or the types of projects”).

¹³⁶ October 2 Letter at 3-6.

SREIR acknowledges that a recent California Air Resources Board (CARB) audit uncovered problems with the ERC program, including that the program was allowing use of inappropriate or over credited offsets. October Draft SREIR at 4.3-72 to 4.3-73. The October Draft SREIR concludes, however, that because the program has now been revised in response to that audit, the credits are reliable going forward. *Id.* at 4.3-73.

This conclusion is belied by the fact that the audit was narrow and that the issues it uncovered appear to be systemic.¹³⁷ The County is required to consider not only the specific problems that were uncovered in the audit, but also what the audit suggests about the program as a whole and the likelihood that the program's credits will reliably reflect legitimate offsets going forward.

Moreover, the program is still undergoing evaluation.¹³⁸ As of now, to Commenters' knowledge the District has not meaningfully responded to questions about the legitimacy and legality of credits in the bank, as described in part 2 of CARB's audit.¹³⁹ If the Air District continues allowing unlawful use of credits, then CEQA does not allow the County to rely on ERCs.¹⁴⁰

B. The October Draft SREIR Fails to Consider and Incorporate Significant New Information on Harms from Oil and Gas Operations.

Since the submission of our comments on the August Draft SREIR, multiple new studies and other references have shown that oil and gas operations have greater impacts than the August Draft acknowledged. The latest October Draft SREIR appears to altogether ignore these significant harms.

¹³⁷ Letter from Catherine Garoupa White et al. to Mary Nichols et al., *RE: CARB Enforcement Division's Review of the San Joaquin Valley Air Pollution Control District's Emission Reduction Credit Program* (June 25, 2020) p. 4.

¹³⁸ The Air District recently released its annual offset equivalency report for the twelve-month period ending August 19, 2020. See San Joaquin Valley Unified Air Pollution Control District, *2019-2020 Annual Offset Equivalency Report* (Nov. 20, 2020), https://www.valleyair.org/busind/pto/annual_offset_report/2019Equivalency.pdf.

¹³⁹ Enforcement Div., Cal. Air Resources Bd., *Review of the San Joaquin Valley Air Pollution Control District Emission Reduction Credit System* (June 2020) pp. 22-32, https://ww2.arb.ca.gov/sites/default/files/2020-06/SJV_ERC_FINAL_20200604.pdf.

¹⁴⁰ See *East Bay Municipal Utility Dist. v. Dept. of Forestry & Fire Protection* (1996) 43 Cal.App.4th 1113, 1132 (presumption that agency will follow the law is inapplicable where it is likely that unlawful conduct will occur, such as when agency adopts the position that its actions are not illegal).

1. *The October Draft SREIR Fails to Adequately Analyze Increased Harms to Wildlife in the Area.*

Substantial new information has emerged regarding the Temblor legless lizard, a rare species found only in certain areas of the Central Valley. The immediate need for protections spurred the Center for Biological Diversity to submit a petition to list the species as endangered or threatened pursuant to section 4(b) of the Endangered Species Act, now under consideration by the U.S. Fish and Wildlife Service.¹⁴¹

Oil and gas activity jeopardizes the survival of this imperiled species. Threats to the Temblor legless lizard from oil and gas development include habitat loss, fragmentation, and degradation, including removal of duff and litter layer the lizard requires; oil, chemical, and produced water spills; noise, light, and air pollution; human disturbance; increased climate disruption; and decreased water quality and quantity. Oil and gas activity has already caused significant habitat loss and fragmentation¹⁴² through the construction of well pads, roads, pipelines, compressor stations, and other linear corridors that impede wildlife movement and dispersal, limit foraging activities, increase habitat isolation, and introduce invasive species.¹⁴³ Of the four locations where the Temblor legless lizard has been identified, two are within the boundaries of the Midway-Sunset and McKittrick oil fields. Midway-Sunset is the largest oil field in Kern County, with more than 25,000 active and idle wells. McKittrick has over 2,360 active and idle wells.

While all oil and gas development is a threat to the species, commonly used oil and gas extraction techniques in California, including in Kern County, such as steam flooding, cyclic steam injection, water flooding, and fracking, are energy and water intensive, causing distinct and additional impacts.¹⁴⁴ The loose sand the lizards need for burrowing, for example, is degraded by the compaction caused by additional heavy equipment and vehicle traffic needed for

¹⁴¹ Center for Biological Diversity, *Petition to List the Temblor Legless Lizard (Anniella Alexandrae) as a Threatened or Endangered Species Under the Endangered Species Act and to Concurrently Designate Critical Habitat* (Oct. 20, 2020), <https://biologicaldiversity.org/species/reptiles/pdfs/Temblor-Legless-Lizard-Petition-10-20-20.pdf>.

¹⁴² Hammerson, G.A. (2019). *Anniella alexandrae*. *The IUCN Red List of Threatened Species 2019*, at 2. <https://www.iucnredlist.org/species/89929911/89929920>; Parham, J.F., Koo, M.S., Simison, W.B., Perkins, A., Papenfuss, T.J., Tennant, E.N. (2019). *Conservation Assessment of the California Legless Lizard (Anniella)*, prepared for the Cal. Dept. of Fish & Wildlife (Aug. 16, 2019) p. 5.

¹⁴³ Brittingham, M.C., Maloney, K.O., Farag, A.M., Harper, D.D., Bowen, Z.H. (2014). Ecological risks of shale oil and gas development to wildlife, aquatic resources and their habitats. *Environ. Sci. Technol.*, 8, 11034-11047, at 11034-43. [dx.doi.org/10.1021/es5020482](https://doi.org/10.1021/es5020482); Souther, S. et al. (2014). Biotic impacts of energy development from shale: Research priorities and knowledge gaps. *Front Ecol. Environ.*, 12(6): 330-338, at 330. <https://doi.org/10.1890/130324>; Allred, B.W. et al., Ecosystem Services Lost to Oil and Gas in North America, 348 *Science* 6233 (2015) p. 402, <https://science.sciencemag.org/content/348/6233/401/tab-pdf>.

¹⁴⁴ Cal. Dept. of Conservation, *Oil Field Surface Expressions* (last visited Dec. 8, 2020), <https://www.conservation.ca.gov/calgem/Pages/Chevron-Cymric-oil-spill.aspx>.

extreme extraction techniques. The spills caused by cyclic steam may also directly harm lizards, or harm them indirectly by destroying habitat. There have been over 25 oil spills in the legless lizard's habitat range, some of which are still ongoing.¹⁴⁵ The October Draft SREIR must fully analyze and evaluate these impacts in order to comply with CEQA.

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2. *The October Draft SREIR Ignores the State's Failure to Properly Analyze and Regulate Oil and Gas Activity.*

New information regarding the state oil and gas regulator's inability to properly review oil and gas projects underscores the unreliability of state regulations to mitigate environmental harms. The California Department of Finance recently released an audit of CalGEM's regulatory oversight of injection projects and well stimulation and found systemic and pervasive violations by the agency.¹⁴⁶ Among the most disturbing practices was CalGEM's use of "dummy projects," or placeholder project folders with missing application and approval documents that the agency nonetheless used to issue permits for new wells.¹⁴⁷ During the audit period, the agency used 14 dummy projects to issue a total of 201 well permits.¹⁴⁸ The audit further revealed that CalGEM repeatedly allowed oil companies to expand or modify injection projects without further review. In one case, CalGEM improperly approved a 640-acre expansion, adding 400 new wells to an existing project.¹⁴⁹ The agency ignored requirements to revise the project approval. The auditors ultimately called on CalGEM to cease injections for all well permits approved under dummy files.¹⁵⁰

Although the audit only reviewed 74 permits out of the 7,120 well permits issued for injection well projects during one period in 2019, it nonetheless concluded that 64 of these permits were improperly approved by unauthorized staff.¹⁵¹ These and other violations indicate that the vast majority of injection well permits and projects are not being properly evaluated by state oil and gas regulators. Consequently, any claim that oil and gas impacts will be reduced or mitigated by adherence to state laws is unsupported. In other words, obtaining "all required permits from [the] Geological Energy Management Division," for example, does not constitute assurance that groundwater will be protected. October Draft SREIR at 4.9-189.

¹⁴⁵ *Id.*; Thomson, R.C., Wright, A.N., Shaffer, H.B. (2016), *California Amphibian and Reptile Species of Special Concern*: 189-190.

¹⁴⁶ Cal. Dept. of Finance, Office of State Audits & Evaluations, *California Department of Conservation: Underground Injection Control and Well Stimulation Treatment Programs* (Nov. 2020), <https://esd.dof.ca.gov/reports/reportPdf/5631D3F7-882E-EB11-9121-00505685B5D1/California%20Department%20of%20Conservation%20Underground%20Injection%20Control%20and%20Well%20Stimulation%20Treatment%20Programs%20Performance%20Audit%20November%202020>.

¹⁴⁷ *Id.* at 24.

¹⁴⁸ *Id.*

¹⁴⁹ *Id.* at 23.

¹⁵⁰ *Id.* at 25-26.

¹⁵¹ *Id.* at 15-16, 21.

3. *The October Draft SREIR Fails to Address the Significant Health and Safety Consequences of California's Orphan and Idle Well Crisis.*

The County also improperly failed to consider significant new information on the devastating community health and safety impacts threatened by the state's idle and abandoned wells, and ignored Commenters' concerns about insufficient bonding levels for oil and gas projects.¹⁵² These wells pose serious risks to water, air, climate, and public health and safety by acting as potential conduits for pollutants while the wells sit idle. Indeed, CalGEM has acknowledged that deserted and idle wells "present several hazards to the environment as well as public health and safety. Deteriorating wells can create a conduit for contaminants such as hydrocarbons, lead, salt, and sulfates to enter freshwater aquifers and pose potential risks to surface water, air quality, soils and vegetation."¹⁵³

More information has come to light regarding Kern County's tens of thousands of idle wells that must be properly plugged and abandoned. Operators set aside only a small portion of the financial resources required to conduct this remediation. An analysis of oil companies exploiting the "blanket bond" provisions in state law reveals that the largest operators have relatively small bonds to cover remediation costs.¹⁵⁴ The largest operators in Kern County have per-well bonding levels that constitute only a small fraction of the average estimated cost to plug an onshore idle well. While the California Council on Science and Technology estimated the average costs of properly plugging an onshore well to be \$68,000 (excluding remediation of surface impacts and any groundwater contamination), Aera Energy has only a \$2 million state bond to cover nearly 25,000 active and idle wells, amounting to about \$80 per well.¹⁵⁵ Other major operators in Kern County have used blanket bonds to drastically undercapitalize their obligations to plug and abandon wells. The October Draft SREIR fails to evaluate how insufficient bonding levels may create more orphan and long-term idle wells, in turn jeopardizing groundwater, climate, and public safety.

New findings reveal that oil and gas wells, whether plugged, idle, or active, emit significant amounts of greenhouse gas. One supposedly plugged oil and gas well in California

¹⁵² See September 16 Letter at 78-83.

¹⁵³ Cal. Dept. of Conservation, Div. of Oil, Gas, & Geothermal Resources, *Idle Well Program Report on Idle & Long-Term Wells in California, Reporting Period: Jan. 1, 2018 to Dec. 31, 2018* (July 2019), https://www.conservation.ca.gov/calgem/idle_well/Pages/idle-well-program-report.aspx.

¹⁵⁴ See Kretzmann, H., *Undercover Risks: How Big Oil's 'Blanket Bonds' Jeopardize the Environment and State Budgets*, Center for Biological Diversity (Oct. 21, 2020), https://www.biologicaldiversity.org/programs/climate_law_institute/pdfs/Undercover-Risks-20-10-21-Blanket-Bond-Report.pdf.

¹⁵⁵ Cal. Council on Science & Technology, *Orphan Wells in California* (Jan. 2020) p. 21, <https://ccst.us/wp-content/uploads/CCST-Orphan-Wells-in-California-An-Initial-Assessment.pdf>; Kretzmann (2020) p. 3.

emitted more than 30 tons of methane gas over a decade.¹⁵⁶ A survey of California oil and gas wells found that 34 percent of plugged wells, 65 percent of idle wells, and 67 percent of active wells leaked detectable amounts of methane.¹⁵⁷ The leakage rate is two orders of magnitude higher compared to a similar study of wells in Colorado, Utah, and Ohio.¹⁵⁸ As a result of fugitive emissions, Kern County produces 77 percent of state methane emissions from wells.¹⁵⁹ The study noted that “[i]n addition to climate concerns, methane leakage from wells can pose a potential risk of explosion, contaminate groundwater, impact air quality through the formation of ozone, and be accompanied by the release of benzene, toluene, and other aromatics that affect human health.”¹⁶⁰

Despite the documented pervasiveness of leakage from every type of oil and gas well, the October Draft SREIR excludes fugitive emissions from its analysis, claiming that such emissions are “speculative and not reasonably foreseeable.” October Draft SREIR, Appendix B-1 at 6. These deficiencies in the October Draft SREIR’s analysis cannot be dismissed as harmless or insignificant, and require analysis and proper mitigation to comply with CEQA.

4. *The October Draft SREIR Fails to Address the Significant Health and Safety Impacts Caused by Orphan and Idle Wells by Improperly Limiting Legacy Equipment Removal as Mitigation.*

As discussed above and in our previous comment letters, new information demonstrates that Kern County’s idle and orphan wells present a significant threat to public health and safety and the environment.¹⁶¹ CEQA requires the County both to analyze and to adopt all feasible mitigation for these significant impacts. There is a need and opportunity for strong measures to help restore degraded land and plug wells that are sources of and pathways for harmful contaminants. Yet the October Draft SREIR fails to implement a mitigation measure that would require all operators to remediate “legacy” oil and gas wells.

Such a mitigation measure is both crucially needed and feasible. Kern County has more than 25,000 idle wells, many of which have been inactive for years.¹⁶² Due to the production decline of existing wells, many more will become idle over the coming decades. There are

¹⁵⁶ Frazier, *Gas Companies Are Abandoning Their Wells, Leaving Them to Leak Methane Forever*, Bloomberg Green (Sept. 17, 2020), <https://www.bloomberg.com/news/features/2020-09-17/abandoned-gas-wells-are-left-to-spew-methane-for-eternity>.

¹⁵⁷ Lebel, E.D. et al. (2020). Methane emissions from abandoned oil and gas wells in California. *Environ. Sci. Technol.*, 54 (22), 14617-14626, at 14622, <https://dx.doi.org/10.1021/acs.est.0c05279>.

¹⁵⁸ *Id.* at 14623-24.

¹⁵⁹ *Id.* at 14623.

¹⁶⁰ *Id.* at 14617.

¹⁶¹ September 16 Letter at 78-83; October 2 Letter at 17.

¹⁶² Dept. of Conservation, Oil and Gas Wells Table, *California “AllWells” database* (updated Dec. 10, 2020), <https://www.conservation.ca.gov/calgem/maps>.

another 69,000 plugged wells in the County that must be inspected and periodically replugged.¹⁶³ By comparison, the County anticipates 67,425 wells being drilled over the next 25 years. October Draft SREIR at 3-35. Thus, it is feasible to require applicants proposing new wells anywhere in the County to remediate legacy wells and equipment.

Moreover, the October Draft SREIR includes a new version of Mitigation Measure 4.2-1, which allows operators to conduct legacy well and equipment remediations to compensate for new agricultural land disturbance under certain limited circumstances. October Draft SREIR at 4.2-31. Legacy wells and equipment cause significant impacts beyond inhibiting the use of prime farmland, however. The full suite of harmful impacts caused by such equipment must be mitigated. Mitigation Measure 4.2-1's inclusion in the October Draft SREIR demonstrates that the County possesses the authority to address the impact of legacy equipment and that it can do so feasibly.

Mitigation Measure 4.2-1, however, is inadequate for use as a model for a broader legacy equipment remediation measure. For instance, the County fails to include a one-to-one remediation ratio requirement, as was included in the previous iteration of Mitigation Measure 4.2-1 in the 2015 Final EIR at 4.2-19. October Draft SREIR at 4.2-31. The Fifth District Court of Appeal deemed the former Mitigation Measure 4.2-1's one-to-one compensation ratio adequate to mitigate land disturbance impacts to agricultural lands.¹⁶⁴ The County has failed to explain why a requirement found feasible by both the County and the court can no longer be implemented.

The County also newly limits the scope of the remediation requirement to operators who own legacy wells and equipment on the same parcel. October Draft SREIR at 4.2-31. Nothing in the prior Mitigation Measure required that a drilled well and the remediation activity take place on the same parcel, owned by the same owner. 2015 Final EIR at 4.2-19. The County fails to explain, among other things, why the remediation requirement need not or could not apply to an operator with proposed wells and legacy wells on separate parcels, why operators would be unable to find legacy wells owned by other operators in Kern County that could be plugged and abandoned, and why there is no other solution—such as a County fund dedicated to the removal of legacy equipment—that could facilitate effective one-to-one remediation.

The County asserts that it cannot require operators to plug a well if they do not own that well by offering a hypothetical situation in which an applicant cannot plug a legacy well because it cannot convince the owner to plug it. This is nothing more than conjecture. It is an unlikely impediment because the vast majority of applications are from large companies with their own substantial inventory of idle wells in Kern County. Even if an applicant has no idle or legacy wells to plug, it can easily find other owners willing to plug older wells. Because owners of idle and legacy wells are legally responsible for the costs of remediation, they would have no reason

¹⁶³ *Id.*

¹⁶⁴ *King & Gardiner Farms, supra*, 45 Cal.App.5th at 876.

to refuse an offer from another company to cover the costs of plugging a well. And, to the extent that is not possible, an applicant could contribute to a County fund to facilitate removal of legacy equipment—provided the funds are spent prior to drilling the new well.

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In sum, new information about idle and orphan wells and their myriad significant impacts, combined with the County's inclusion of Mitigation Measure 4.2-1 in the October Draft SREIR, demonstrate the need for and feasibility of a broader well remediation mitigation measure. This measure should not be modeled after the new Mitigation Measure 4.2-1, in light of that measure's inadequacy. Rather, the County must consider and adopt a measure that effectively mitigates all of the significant impacts caused by idle and orphan wells.

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IX. Conclusion

For the reasons set forth above, we urge the County to reject the Ordinance. We also request that the County adopt the above-described measures to allow Spanish-speaking residents to participate meaningfully in the public process.

We reserve the right to identify new issues, provide additional information, and propose additional mitigation measures during the County's ongoing decision making process for the Ordinance.

Sincerely,

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ADDENDUM A

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December 14, 2020

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Re: Review of October 2020 Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020(A), Focused on Oil and Gas Local Permitting, SCH# 2013081079

Dear Mr. O'Brien,

Per your request, I reviewed the Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020(A) on Oil and Gas Local Permitting ("Project") published by the Kern County Planning and Natural Resources Department ("County") in October 2020 (hereafter "October Draft SREIR").¹ The October Draft SREIR is a revised and amended version of the Draft SREIR published by the County in August 2020 (hereafter "August Draft SREIR").

I previously commented on deficiencies of the sections on air quality (Section 4.3) and greenhouse gas emissions (Section 4.7) for the Project in the Final Environmental Impact Report published by the County in 2015 ("2015 Final EIR")² and in the August Draft SREIR.³ My comments below expand on these deficiencies and address additional issues including the failure to identify and mitigate significant criteria pollutant emissions from construction and operation of stationary sources subject to permitting

¹ Kern County Planning and Community Development Department, Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C), Focused on Oil and Gas Local Permitting, October 2020, SCH# 2013081079; available at: <https://kernplanning.com/environmental-doc/oil-and-gas-sreir/>.

² Petra Pless, Letter to Will Rostov, Earthjustice, Re: Review of Final Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C), Focused on Oil and Gas Local Permitting, SCH# 2013081079, November 11, 2015. (See October Draft SREIR, Vol. 8, AR 159172-159200, reproduced without 34 exhibits.)

³ Petra Pless, Letter to Colin O'Brien, Earthjustice, Re: Review of Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020(A), Focused on Oil and Gas Local Permitting, SCH# 2013081079, September 16, 2020. (See October Draft SREIR, Vol. 2, Appx. G.)

by the San Joaquin Valley Air Pollution Control District (“SJVAPCD”). Issues discussed in my comments on the August Draft SREIR not specifically addressed in these comments are herewith incorporated by reference. In addition, these comments provide errata to my comments on the August Draft SREIR, Attachment C, which was inadvertently provided as a draft version without proper figure and table references (no changes to the content were made).

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I. The October Draft SREIR's Air Quality Section Is Not Adequately Supported, Inaccessible, and Incomplete

I previously commented on the lack of adequate support for the emission estimates and conclusions presented in the air quality sections in the 2015 Final EIR and the August Draft SREIR. The October Draft SREIR did nothing to address these deficiencies. Thus, Section I of my comments on the August Draft SREIR remains applicable to the October Draft SREIR and is herewith incorporated by reference.

The October Draft SREIR also keeps intact the same highly repetitive and poorly organized structure as the August Draft SREIR. For example, the entire discussion in Section 4.3.4 Impacts and Mitigation Measures (covering Air Quality Impacts 4.3-1 through 4.3-4), which spans 78 pages, does not provide numbering for the various subheadings nor does it provide adequate visual cues with distinct formatting to indicate where in the overall scheme a respective discussion fits (*e.g.*, for construction and operational emissions, permitted and permit-exempt equipment, criteria pollutant modeling, etc.), making navigation between the various subsections, impacts, and mitigation measures unnecessarily difficult. What's more, the document repeats information, some verbatim, throughout the document.⁴ Review of the document is further hampered by imprecise and ill-defined terms, incorrect or imprecise table

⁴ See, for example, October Draft SREIR, Vol. 1, Section 4.3 Air Quality, pp. 4.3-72 and 4.3-73 ("... CARB recently performed an audit of the SJVAPCD ERC Banking Program, CARB did not overturn the program (CARB 2020b, 2020c). Subsequently, the SJVAPCD Board approved staff recommendations to remove Ag-ICE projects from the NOx ERC equivalency system and to remove orphan shutdown projects from the VOC ERC equivalency system, effective September 17, 2020 (SJVAPCD 2020). This action means that the SJVAPCD cannot demonstrate federal equivalency with the surplus value test for NOx and VOC and thus any new major source or federal major modification triggering NOx or VOC offsets under Rule 2201 will require "surplus at time of use" ERCs, which means ERCs must be demonstrated to be surplus at the time an ATC is issued, rather than at the time that the emission reductions began. This process will remain in place until such time that equivalency with the federal program is again demonstrated by the SJVAPCD. This step by the SJVAPCD thus restricts the allowable number of ERCs that are valid for use as offsets in the Valley, but does not change the way that ERCs are used nor does it change permitting requirements under Rule 2201. Thus, permitted stationary sources will only be allowed to move forward and be permitted by the SJVPACD if emissions are properly offset and if the SJVPACD approves an ATC, as required by Rule 2201."), repeated verbatim at p. 4.3-88 and p. 4.3-110.

headings,⁵ repetitive tables with the same information,⁶ incorrect information,⁷ and the document's failure to provide updated weblinks to cited references.⁸

One prime example of imprecise or ill-defined use of terms is the use of the word "non-permitted" for emissions sources: the October Draft SREIR uses this term to distinguish between stationary sources requiring permits from the SJVAPCD and sources and activities not requiring such permits, including small equipment, well-related maintenance and treating operations, routine business travels, trucks, automobile work trips, and onsite vehicles.⁹ Yet, the October Draft SREIR also refers to "non-permitted equipment" when it actually means "stationary equipment operated by non-Title V operators," *i.e.*, stationary equipment permitted by the SJVAPCD for small oil and gas operators whose combined emissions from stationary sources do not reach major source status requiring a Title V permit.¹⁰ Elsewhere, October Draft SREIR refers to these non-Title V operators as "Small O&G Sources."¹¹ This inconsistent use of the term "non-permitted" is confusing to even an experienced reviewer.

The October Draft SREIR introduces even more confusion and repetition by providing "clarified" versions of three mitigation measures (MM 4.3-2, MM 4.3-6, and MM 4.3-8) followed by the verbatim versions of these mitigation measures elsewhere in the text

⁵ For example, October Draft SREIR, Vol. 1, Section 4.3 Air Quality, Tables 4.3-30 and 4.3-31 have the exact same caption ("Total Estimated Incremental Emissions from the Project Non-Permitted Equipment and Activities per New Well in Tons per Year"). This heading is incorrect for Table 4.3-31, which summarizes estimated annual emissions for 3,647 new wells in any year in tons per year.

⁶ Compare October Draft SREIR, Vol. 1, Section 4.3 Air Quality, Table 4.3-8 (San Joaquin Valley Air Pollution Control District Criteria Pollutant Emissions, Significance Thresholds (tons per year)), p. 4.3-72, and Table 4.3-10 (San Joaquin Valley Air Pollution Control District Criteria Pollutant Emissions Significance Thresholds (tons per year)), p. 4.3-94; and tables summarizing thresholds of significance, pp. 4.3-81 and 4.3-94.

⁷ For example, October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-138 claims: "As shown in Table 4.3-DD, NOx reductions attributable to emission reduction projects funded by ERA mitigation fees have increased from 181 tons in 2016 to **1,068 tons in 2020**." This is incorrect, Table 4.3-DD shows that NOx reductions attributable to emission reduction projects funded by ERA mitigation fees have increased from 181 tons in 2016 to **959 tons in 2020**.

⁸ For example, *see* October Draft SREIR, Vol. 1, Section 10 Bibliography: the weblink for Kern County Planning Department's 2006 Guidelines for Preparing an Air Quality, Assessment for Use in Environmental Impact Reports, was last accessed on April 20, 2015 and the document is no longer available for download at <http://www.co.kern.ca.us/planning/pdfs/AirQualityAssessmentpreparationGuidelines.pdf>.

⁹ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-82.

¹⁰ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-111 ("However, all emissions increases from permitted equipment plus the 10% allowance from non-permitted equipment would be required to be fully offset pursuant to District Rule 2201.") and p. 4.-446 ("Facilities were assumed to be inspected every other workday. The number of facilities was increased by 10% to account for non-permitted sources.").

¹¹ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, Table 4.3-20.

but without underline/strikethrough.¹² The result is a bloated document – the air quality section alone, without appendices, is 168 pages long – that fails to effectively convey pertinent information about the impacts of the Project to the public.

Finally, the State and County CEQA Guidelines require that a CEQA document analyze whether a project would:

- a) Conflict with or obstruct implementation of the applicable air quality plan?
- b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
- c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?
- d) Expose sensitive receptors to substantial pollutant concentrations?
- e) Create objectionable odors affecting a substantial number of people?

Here, the October Draft SREIR provides significance thresholds to support findings under question b) *i.e.*, for assessing whether the Project would violate or contribute substantially to an existing violation of ambient air quality standards,¹³ but declines to provide ambient air quality modeling for criteria pollutants:¹⁴

Ambient air quality modeling results for NO₂, SO₂, and CO, PM₁₀, and PM_{2.5} are sometimes warranted for large stationary sources near potentially sensitive receptors. Since the Project consists of Zoning Code Amendments that will regulate a broad range of oil and gas activities located throughout the Project Area, and excludes the types of large stationary sources (e.g., new and expanded cogeneration plants) that could warrant ambient air quality modelling, this modelling was not required to evaluate the potential significance of Project-related air emissions.

The October Draft SREIR makes no finding as to whether the Project's emissions would result in violations or contribute to existing violations of ambient air quality standards (typically supported by ambient air quality modeling) and simply skips answering question b).¹⁵

¹² See October Draft SREIR, Vol. 1, Section 4.3 Air Quality: **MM4.3-2** clarified at pp. 4.3-89 and 4.3-89 and repeated without underline/strikethrough at pp. 4.3-91 and 4.3-92; **MM 4.3-6** clarified at pp. 4.3-157 and 4.3-158 and repeated without underline/strikethrough at pp. 4.3-159 and 160; **MM 4.3-8** clarified at pp. 4.3-142 and 4.3-143 and repeated without underline/strikethrough at pp. 4.3-164 and 4.3-165.

¹³ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, Table 4.3-9.

¹⁴ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-22.

¹⁵ See October Draft SREIR, Vol. 1, Section 1 Executive Summary, pp. 143 through 1-147.

II. The October Draft SREIR Fails to Identify and Mitigate Significant Criteria Pollutant Emissions from Construction and Operation of Stationary Sources Subject to Permitting by the San Joaquin Valley Air Pollution Control District

Future oil and gas exploration and production activities that would be authorized under the Project would include construction and operation of stationary equipment (emission units) subject to permitting by the San Joaquin Valley Air Pollution Control District (“SJVAPCD” or “District”) such as boilers, cogeneration plants, process heaters, reciprocating internal combustion engines, steam generators, production tanks, thermally enhanced oil recovery wells, volatile organic compound destruction devices (“VOCDDs”) such as flares, storage tanks, loading and unloading racks, and fugitive emissions.¹⁶ Specific projects under the SJVAPCD’s permitting authority may involve construction and operation of one or more such emission units and may involve permitting of a new stationary source or modification of an existing stationary source.¹⁷

As discussed below, the October Draft EIR claims that significant emissions from construction and operation of such stationary equipment, or emission units, would be fully offset and result in a net zero increase of emissions because these emissions units would be subject to the offset requirements of District Rule 2201. These claims are incorrect because District Rule 2201 simply does not guarantee a “no net increase” in emissions from construction or operation of the above discussed permitted sources. In fact, as discussed in Comment II.A, the rule does not apply to construction emissions. Further, as discussed in Comment II.B, the rule authorizes certain operational emissions increases without offsets and also exempts emissions from certain permitted stationary equipment from the offset requirements. As a result, the October Draft EIR fails to require any mitigation to reduce significant emissions during construction and operation of stationary permitted equipment to below applicable threshold of significance. These emissions remain significant and unmitigated.

Further, because the October Draft EIR falsely concludes that emissions associated with construction and operation of stationary equipment would be offset in their entirety, it

¹⁶ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, pp. 4.3-85 and 4.3-88.

¹⁷ District Rule 2201 defines a stationary source as: any building, structure, facility, or installation which emits or may emit any affected pollutant directly or as a fugitive emission. Building, structure, facility or installation includes all pollutant emitting activities including emissions units which: are under the same or common ownership or operation, or which are owned or operated by entities which are under common control; and belong to the same industrial grouping either by virtue of falling within the same two-digit standard industrial classification code or by virtue of being part of a common industrial process, manufacturing process, or connected process involving a common raw material; and are located on one or more contiguous or adjacent properties; or are located on one or more properties wholly within either the Western Kern County Oil Fields or the Central Kern County Oil Fields or Fresno County Oil Fields and are used for the production of light oil, heavy oil or gas. Notwithstanding the provisions of this definition, light oil production, heavy oil production, and gas production shall constitute separate Stationary Sources.

fails to incorporate these emissions into the emission estimates supporting the fee calculations under mitigation measure MM 4.3-8.

As such, the document's conclusion that "all reasonable and feasible mitigation has been required and will reduce the air emissions as close to a 'no net increase' from the current emissions over the next 21 years as is scientifically possible to quantify and confirm" is incorrect.¹⁸ Further, the October Draft EIR's conclusion that the Project's impacts with respect to a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard are "significant and unavoidable"¹⁹ are not supported by a full analysis of emissions or required mitigation.

II.A Emissions from Construction of Stationary Equipment Subject to Permitting under District Rule 2201 Are Significant and Unmitigated

The October Draft SREIR provides a discussion of and emission estimates for construction of stationary equipment subject to permitting by the SJVAPD.²⁰ Estimates for emissions from construction of this equipment during a single year are summarized in Table 1.

Table 1: Emissions from construction of stationary equipment subject to permitting under SJVAPCD Rule 2201 during a single year (tons/year)

	ROG	NOx	CO	SO ₂	PM10	PM2.5
Emissions	76	633	378	0.5	46.5	41.2
SJVAPCD significance threshold	10	10	100	27	15	15
Significant?	YES	YES	YES	no	YES	YES

From: October Draft SREIR, Table 4.3-12

As shown, ROG, NOx, CO, PM10, and PM2.5 emissions would exceed the District's CEQA thresholds of significance for construction multiple times over. The October Draft SREIR recognizes that "[t]otal Project emissions resulting from the construction of new facilities on an annual basis would exceed the SJVAPCD Criteria Pollutant Emissions Significance Thresholds except for SO₂. However," the document argues, "constructing of new facilities would be subjected to the District's air permitting process (Rule 2201), which would ensure that all emissions would have to be fully offset. Therefore, there would be no net increase in these emissions."²¹ This is incorrect.

¹⁸ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-143.

¹⁹ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-143.

²⁰ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, pp. 4.3-98 through 103 and Tables 4.3-12, 4.3-13.

²¹ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, pp. 4.3-102 and 103.

District Rule 2201 only regulates operational emissions from stationary sources, not construction emissions. Emissions associated with construction of stationary sources would ordinarily be subject to a project-specific CEQA document (unless categorically or ministerially exempt) whose preparation would now be pre-empted by the proposed ordinance.²² These construction emissions are also not included in the October Draft SREIR's calculation of fees to be paid under the OG-ERA. (The fee calculation only includes construction emissions from non-permitted equipment.²³) Thus, the identified significant criteria pollutant emissions from construction of stationary equipment subject to permitting requirements by the SJVAPCD, which would exceed the District's respective significance thresholds many times over, would not be mitigated and remain significant.

II.B Emissions from Operation of Stationary Equipment Subject to Permitting under District Rule 2201 Are Significant and Unmitigated

The October Draft SREIR provides a discussion of and emission estimates for operation of stationary equipment subject to permitting by the SJVAPCD.²⁴ This includes emissions from major stationary sources subject to Title V permitting and smaller operators not subject to Title V permitting. Estimates for emissions from operation of this equipment during a single year are summarized in Table 2.

Table 2: Emissions from operation of stationary equipment subject to permitting (Title V and non-Title V operators) under SJVAPCD Rule 2201 (tons/year)

	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Emissions	1,025.29	1,756.34	1,610.14	183.23	475.3	475.73
SJVAPCD significance threshold	10	10	100	27	15	15
Significant?	YES	YES	YES	YES	YES	YES

From: October Draft SREIR, Table 4.3-20

²² See October Draft SREIR, Vol. 1, Section 3 Project Description, p. 3-6 ("This SREIR provides project-level CEQA coverage for most future oil and gas air permits issued by the SJVAPCD, and also requires additional air quality mitigation for oil and gas activities pursuant to a new Voluntary Emission Reduction Agreement, as described in Section 4.3, Air Quality. This SREIR does not provide CEQA coverage for new or expanded cogeneration facilities, which likely would not be required as part of the Project.").

²³ See October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-126 ("For construction activities, all non-permitted emissions estimated for each Project year 2015 and 2035 are included in the table." ... "Table 4.3-29 presents the total non-permitted incremental emissions from the Project, excluding the non-permitted emissions from oil and gas production and processing activities initiated before the start of the Project in 2015."), p. 4.3-127 ("Table 4.3-30 presents the total estimated incremental emissions from the Project non-permitted equipment and activities in tons per year, divided by the projected number of new wells for each year that was used in the calculation of the emissions."), and p. 4.3-128 ("Table 4.3-31 presents the total estimated incremental increase in emissions from the Project nonpermitted equipment and activities in tons per year...").

²⁴ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, pp. 4.3-110 through 4.3-113 and Table 4.3-20.

The October Draft SREIR recognizes that emissions from stationary equipment requiring a permit would exceed the SJVAPCD's thresholds of significance for several criteria pollutants by significant amounts:²⁵

Project emissions would exceed the SJVAPCD Operational Emissions and, therefore, would represent a potentially significant impact. The annual contribution of PM₁₀ and PM_{2.5} would be almost 30 times the threshold. The emissions of ozone precursors (NO_x, ROG, and CO) would exceed their respective thresholds: NO_x would be almost 50 times the threshold, VOC more than 170 times the threshold, and CO more than eight times the threshold. However, all emissions increases from permitted equipment plus the 10% allowance from non-permitted equipment would be required to be fully offset pursuant to District Rule 2201. Offsets for emissions of NO_x and VOC would be required at a ratio of 1 to 1.5. Other criteria pollutants are assumed to be offset at a ratio of 1 to 1. Therefore, there would be no net increase in these emissions.

The October Draft SREIR explains that permitted stationary sources will only be allowed to move forward and be permitted by the SJVPACD if emissions are properly offset and if the SJVPACD approves an Authority to Construct ("ATC"), as required by District Rule 2201.²⁶ The October Draft SREIR's claim of "no net increase" on account of the applicability of District Rule 2201 is wrong.

District Rule 2201²⁷ specifies the following for emissions increases associated with a project (for purposes permitting by the SJVAPCD a "project" is the construction or modification of a "stationary source," which can involve construction or modification of one or more individual pieces of "stationary equipment" such as boilers, heaters, flares, etc.):

- 4.5.3 Offset requirements shall be triggered on a pollutant-by-pollutant basis. Unless exempted pursuant to Section 4.6, offsets shall be required if the post-project Stationary Source Potential to Emit (SSPE2) equals or exceeds the following offset threshold levels:

Table 4-1, Emissions Offset Threshold Levels

POLLUTANT	SSPE2 (POUNDS /YEAR)
VOC	20,000
NO _x	20,000
CO	200,000
SO _x	54,750
PM ₁₀	29,200

Corresponds to
(tons/year)
10
10
100
27.38
14.6

These emission offset threshold levels are almost identical to the CEQA thresholds of significance established by the SJVAPCD for stationary sources 10 tons/year for

²⁵ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-111.

²⁶ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, pp. 4.3-73 and 4.3-88.

²⁷ SJVAPCD, Rule 2201, New and Modified Stationary Source Review Rule, adopted September 19, 1991, last amended February 18, 2016; available at:
<https://www.valleyair.org/rules/currentrules/Rule22010411.pdf>.

VOC/ROG or NO_x, 100 tons/year for CO, 27 tons/year for SO_x, and 15 tons/year of PM₁₀).

District Rule 2201, Section 4.7, clarifies that only emissions above the emission offset threshold levels must be offset:

4.7 Emission Offset Quantity Calculations:

4.7.1 For pollutants with a pre-project Stationary Source Potential to Emit (SSPE1) greater than the emission offset threshold levels, emission offsets shall be provided for:

4.7.1.1 All increases in Stationary Source emissions, calculated as the sum of differences between the post-project Potential to Emit (PE2) and the Baseline Emissions (BE) of all new and modified emissions units, plus

4.7.1.2 All increases in Cargo Carrier emissions.

4.7.2 For pollutants with a pre-project Stationary Source Potential to Emit (SSPE1) less than or equal to the offset threshold levels, emission offsets shall be provided for:

4.7.2.1 All increases in Stationary Source emissions above the offset trigger levels, calculated as the difference between the SSPE2 and the offset trigger level, plus

4.7.2.2 All increases in Cargo Carrier emissions.

In other words, operational emissions from stationary sources equal to or less than the offset threshold levels (10 tons/year for VOC/ROG or NO_x, 100 tons/year for CO, 27.38 tons/year for SO_x, and 14.6 tons/year of PM₁₀) are not required to be offset under District Rule 2201.

Moreover, District Rule 2201 includes another limitation: Section 4.6 of the rule specifies that emission offsets are also not required for operational emissions from the following exempt permitted stationary equipment: emergency standby equipment for electric power generation or any other emergency equipment that does not operate more than 200 hours per year.

In sum, the October Draft SREIR's assurance that under District Rule 2201 there would be "no net increase" in operational emissions of permitted stationary equipment²⁸ and its claim elsewhere that "... it is reasonable to assume that permitted stationary source emissions will continue to be offset under SJVAPCD rules and reduced or mitigated to below SJVAPCD's recommended significance thresholds"²⁹ are wrong.

²⁸ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-111.

²⁹ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-73.

In practice, an operator in Kern County may request a permit for a new stationary source from the SJVAPCD, and District Rule 2201 would allow the source to emit up to and including 10 tons/year for VOC/ROG or NO_x, 100 tons/year for CO, 27.38 tons/year for SO_x, and 14.6 tons/year of PM₁₀ without being required to purchase offsets. Only emissions above these offset threshold levels are required to be offset. Thus, even one new stationary source has the potential to emit as much or close to the SJVAPCD's CEQA thresholds of significance (10 tons/year for VOC/ROG or NO_x and 100 tons/year for CO, and 27 tons/year for SO_x, and 15 tons/year of PM₁₀) which would not be offset. If two (2) new stationary sources would be permitted and operated in the future under the proposed regulation, this could result in an increase of criteria pollutant emissions in the San Joaquin Valley Air Basin of up to 20 tons/year NO_x and VOC, 200 tons/year of CO, 54.76 tons/year of SO_x, and 29.2 tons/year of PM₁₀ and PM_{2.5}, which would not be offset. If 100 new stationary sources would be permitted and operated in the future under the proposed regulation, this could result in an in the San Joaquin Valley Air Basin in the future increase of 1,000 tons/year NO_x and VOC, 10,000 tons/year of CO, 2,738 tons/year of SO_x, and 1,460 tons/year of PM₁₀ and PM_{2.5}, which would not be offset. Emissions would by far exceed the respective CEQA thresholds of significance for these pollutants. In addition, the respective stationary sources would be permitted for operation of up to 200 hours per year of emergency equipment such as emergency generators, emergency fire water pumps. Emissions from emergency equipment, which are typically diesel-powered, are not required to be offset.

Given that District Rule 2201 allows a single new stationary source to emit so close to the significance threshold – with no obligation to offset increased emissions – it is therefore reasonable to assume that the combined emissions from multiple projects at one or multiple permitted stationary sources under the proposed regulation (the Project) would by far exceed the SJVAPCD's respective CEQA thresholds of significance. The October Draft SREIR, however, wholly fails to disclose this significant impact.

II.C Emissions from Construction and Operation of Permitted Stationary Equipment Are Not Accounted for under the Oil and Gas Emission Reduction Agreement (Mitigation Measure MM 4.3-8)

Emissions from construction and operation of permitted stationary equipment are also not accounted for by the October Draft SREIR in its calculation of emissions required to be mitigated under MM 4.3-8, the Oil and Gas Emission Reduction Agreement ("OG-ERA"). Thus, the October Draft SREIR fails to identify significant impacts on air quality due to emissions of criteria air pollutants from construction and operation of permitted stationary sources and fails to require all feasible mitigation. Because no further CEQA analysis would be required for stationary source projects before the SJVAPCD (by design of this Project), these emissions remain significant and unmitigated.

III. The October Draft SREIR Fails to Adequately Describe the Health Effects and Impacts on the Natural Environment of PM10 and PM2.5

I previously commented on the August Draft SREIR's failure to adequately describe the health effects of PM10 (coarse inhalable (or respirable) particulate matter with a diameter equal to or smaller than 10 micrometers) and PM2.5 (fine inhalable particulate matter with a diameter equal to or smaller than 2.5 micrometers) in the section *Criteria Air Pollutants and Health Effects* in Section 4.3 Air Quality. The October Draft SREIR's perfunctory attempts to rectify this issue fail to do so.

First, the October Draft SREIR provides additional discussion of the health effects and impacts on the natural environment of PM10 and PM2.5 but confusingly provides the discussion for both particulate sizes under the heading "Fine Particulate Matter (PM2.5)."

Second, despite these revisions, the October Draft SREIR still falls short of conveying the severity of health effects due to particulate pollution. For example, the October Draft SREIR fails to mention that, while particulate matter can cause health problems for everyone, certain people are especially vulnerable to adverse health effects including infants and children, the elderly, exercising adults, and those suffering from chronic lung disease such as asthma, bronchitis, or chronic obstructive pulmonary disease. Most importantly, the October Draft SREIR fails to adequately discuss the health effects associated with the two regulated size fractions. While the document recognizes that "PM10 and PM2.5 have fundamentally distinct ... health effects," it fails to provide a corresponding discussion for both particulate size fractions. The October Draft SREIR provides two additional sentences listing several long-term and short-term health effects of PM2.5 but fails to include such a discussion for PM10. Further, the discussion of PM2.5 health effects lacks specificity. Moreover, the October Draft SREIR fails to mention that exposure to particulate matter can cause lung cancer and result in poorer survival of people with lung cancer.

Third, the October Draft SREIR claims that the new section entitled "Oil and Gas Operations and Health Effects" "further discusses potential health effects of PM2.5, among other things."³⁰ This is incorrect. Out of the 50 synopses of studies presented by the October Draft SREIR in this section, not even one addresses the health effects of PM2.5. (The only summary that even mentions PM2.5, the summary of the 2020 State of the Air report published by the American Lung Association, only states that the report "includes a list of the top 25 most polluted cities in the United States for (i) 24-hour PM2.5, (ii), annual PM2.5...")

³⁰ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-16.

IV. The October Draft SREIR's Discussion of the Impact of OG-ERA Implementation (pursuant to Mitigation Measure 3.4-8) on PM_{2.5} Mitigation (and Other Criteria Pollutants) Is Inadequate

I previously commented on the August Draft SREIR that discussion regarding the County's primary mitigation measure for reducing significant emissions of fine particulates or PM_{2.5}, MM 4.3-8, is inadequate.³¹ The October Draft SREIR attempts to resolve the discussed shortcomings but fails to effectively do so, as discussed below.

IV.A The October Draft SREIR's Characterization of Particulate Matter Size Fractions and Potential PM_{2.5} and PM₁₀ Emission Reductions Remains Flawed

The October Draft SREIR revises terminology errors for particulate matter size fractions presented in the August Draft SREIR. This includes replacing incorrect references to PM₁₀ (inhalable coarse particles smaller than or equal to 10 µm in diameter) with the applicable size fraction PM_{2.5-10} (the coarse fraction of PM₁₀ with a diameter greater than 2.5 µm and equal to or less than 10 µm (in the literature typically referred to as PM_{10-2.5})). However, the October Draft SREIR does not provide an adequate discussion of this size fraction to aid the reviewer in understanding the implications of this change in terminology. I suggest that the County include such a discussion in the section *Criteria Air Pollutants and Health Effects*. (See Comment III.)

IV.B The October Draft SREIR Fails to Demonstrate that Sufficient Emission Reductions Are Available in Kern County and the San Joaquin Valley Air Basin to Offset Project PM_{2.5} (and other Criteria Pollutant) Emissions

I previously commented on the August Draft SREIR that there simply may not be enough pollution-reducing projects in the San Joaquin Valley Air Basin, let alone in Kern County, to reduce Project pollutant emissions to "close to a "no net increase" as "scientifically possible," as claimed.³² The October Draft SREIR's attempts to resolve this issue are not satisfactory.

In fact, the October Draft SREIR makes my point by providing a summary of the total percentage of available fee revenues used or encumbered under the SJVAPCD's emission reduction agreements ("ERAs"), including the OG-ERA, which shows that the highest percentage of fees used or encumbered in any given year between 2016 and

³¹ MM 4.3-8 involves the collection of fees from Project applicants under a Voluntary Emission Reduction Agreement ("VERA"), or Development Mitigation Contract ("DMC"), with the SJVAPCD entitled the Oil and Gas Emission Reduction Agreement ("OG-ERA"). Fees collected under the OG-ERA are intended to be spent on pollution-reducing projects administered by the SJVAPCD.

³² October Draft SREIR, Vol. 1, Section 4.3 Air Quality, pp. 4.3-66, 4.3-110, and 4.3-130.

2020 was 60.3% in 2017 and decreased to less than 40 percent of the available fees in the past two reporting period years (28.2% in 2019 and 35.5% in 2020).³³

Further, the October Draft SREIR claims:

To date, the SJVAPCD has received \$101,348,145 in mitigation fees and has spent or encumbered \$79,260,274. As the OG-ERA mitigation fees account for approximately 91% of the VERA fees received by the SJVAPCD, it is reasonable to conclude that 91% of the fees spent by the SJVAPCD are from OG-ERA mitigation fees. This would result in the SJVAPCD's having spent approximately 78% of the total OG-ERA mitigation fees that it had received as of June 30, 2020.³⁴

The October Draft SREIR's mental gymnastics for the percentage of total OG-ERA fees spent are not supported and are impossible to follow for the general public.

The amounts and percentages cited by the October Draft SREIR are based on the SJVAPCD's Annual Reports for ISR/ERAs for reporting years 2016 through 2020³⁵ and are derived as follows:

- The total collected fees of **\$101,348,145** collected by the SJVAPCD is based on the reporting years 2016 through 2020 for ERAs.
- The total fees of **\$79,260,274** spent or encumbered by the SJVAPCD is based on the reporting years 2016 through 2020 for ERAs.
- In contrast, the figure of **91%** of all fees accounted for by OG-ERA fees claimed by the October Draft SREIR is based on the total OG-ERA fees and ERA fees collected by the SJVAPCD in the reporting years 2017 through 2020: (total OG-ERA fees collected: \$84,719,099)/(total ERA fees collected: \$92,736,139) = 0.91.
- The percentage of **78%** was again derived based on total ERA fees spent and encumbered in the reporting years 2016 through 2020: (total ERA fees spent and encumbered: \$79,260,274)/(total ERA fees collected: \$101,356,342) = 0.78.

The October Draft SREIR's reasoning that it is "reasonable to conclude that 91% of the fees spent by the SJVAPCD are from OG-ERA mitigation fees" is not supported. Specifically, according to the ISR/ERA Annual Reports, the SJVAPCD collected fees under ERAs since at least 2009.³⁶ Because fees collected are not necessarily spent in the

³³ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, Table 4.3-CC.

³⁴ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-138.

³⁵ SJVAPCD, Annual Reports, Indirect Source Review Program; available at: <https://www.valleyair.org/ISR/ISRResources.htm#ISRReports>.

³⁶ It is possible that the SJVAPD collected ERA fees earlier than 2009 but collected fees are not specifically broken out in the ISR Annual Reports.

same reporting year, as evidenced by the rolling beginning fund balance in the ISR Annual Reports, the percentage of fees spent compared to the percentage of fees collected varies from year to year and within certain time periods. Further, the amount 'encumbered' in any given year is rolled into the next reporting year beginning fund balance and shows up as 'amount spent' if the projects for which the amount was encumbered is realized in that reporting year. What matters is the total amount of fees collected by the SJVAPCD over the life of the ERA program (from 2009 through 2020: \$104,767,522) and the amount spent to date (from 2009 through 2020: \$42,242,283), as summarized in Table 4.

Table 4: Fees collected and spent under SJVAPCD ERA program

Year	Amount Collected	Amount Spent
2009	\$152,073	\$2,199,013
2010	\$(83,779)	\$165,092
2011	\$672,598	\$290,200
2012	\$937,509	\$802,793
2013	\$304,616	\$382,650
2014	\$124,459	\$354,391
2015	\$1,311,901	\$807,889
2016	\$8,612,006	\$1,395,589
2017	\$8,998,493	\$3,767,002
2018	\$20,287,656	\$9,396,146
2019	\$42,915,629	\$12,461,331
2020	\$20,534,361	\$10,220,187
Total	\$104,767,522	\$42,242,283

From: SJVAPCD, Annual Reports, Indirect Source Review Program; available at:

<https://www.valleyair.org/ISR/ISRResources.htm#ISRReports>

The resulting percentage of fees collected vs. fees spent is far less impressive: $(\$104,767,522)/(\$42,242,283) = 0.43$ or 43%. In sum, the Draft SREIR may not arbitrarily select a five-year period (2006 through 2020) to determine what amount of OG-ERA fees have been spent or encumbered. Thus, the Draft SREIR's claim that this "would result in the SJVAPCD's having spent approximately 78% of the total OG-ERA mitigation fees that it had received as of June 30, 2020" is not supported.

The October Draft SREIR further attempts to support its presumption that sufficient emission reduction projects exist to spend the fees collected under the OG-ERA:

Further, the SJVAPCD 2020 ISR Annual Report, dated September 17, 2020, states that, "[s]ince the [June 30, 2020] end of the reporting period for this report, the vast majority of the unencumbered balance has now been encumbered or is in the process of being encumbered for emission reduction projects during this fiscal year" (SJVAPCD 2020c). Thus, very few to no mitigation fees will be carried over into 2021 by the SJVAPCD.

Here, I note that the statement in the SJVAPCD's 2020 Annual Report³⁷ refers to the fees collected under both the ISR and the ERA programs, whose fee collection and expenditures are administered separately. Since the SJVAPCD received only about half of the fees it collected under both programs than the reporting year before (2020 total amount received: \$27,957,468; 2019 total amount received: \$51,697,087), as a result of the OGERA no longer being implemented by the County as of March 25, 2020, this statement does not conclusively indicate that there will be sufficient emission reduction projects once the County would again submit fees under the OG-ERA. Further, even if most of the unencumbered balance of 52,571,184 was in fact encumbered after June 30, 2020, the end of the reporting period for the 2020 Annual Report, this amount of mitigation fees will be carried over into the beginning balance of 2021, contrary to the Draft SREIR's claim.

IV.C The October Draft SREIR Fails to Demonstrate that the OG-ERA Would Result in Sufficient PM2.5 Emission Reductions

I previously commented that the intent of the OG-ERA (under MM 4.3-8) to offset the Project's emissions increases for all pollutants from sources other than those from permitted stationary sources to net zero is neither tracked nor enforceable. The October Draft SREIR's attempts to resolve this issue are not satisfactory.

The list of all emission reduction projects funded by the ISR-VERA programs provided in Appendix A to the SJVAPCD's most recent ISR Annual Report shows that the majority of projects resulting in particulate matter emission reductions currently funded by the District involve wood stove replacement (65% of projects resulting in 79.1% of PM10 reduction) and about 9% are attributable to alternative agricultural burning.

³⁷ SJVAPCD, 2020 Annual Report, Indirect Source Review Program Reporting Period: July 1, 2019 to June 30, 2020; available at: <https://www.valleyair.org/ISR/Documents/2020-ISR-Final-Annual-Report.pdf>.

Table 3: Emission reduction projects from the SJVAPCD's 2020 ISR Annual Report

Equipment	Count of Projects	Sum of NOx		Sum of PM10		Percent Engine Combustion
		(tons/project life)	Percent	(tons/project life)	Percent	
Ag Pump Alt Fuel to Electric	2	16.8	1.4%	0.4	0.1%	0.1%
Ag Pump Diesel to Electric	1	11.1	0.9%	0.6	0.1%	0.1%
Ag Vehicle Replacement	144	876.2	71.5%	59.4	9.4%	9.4%
Ag Vehicle Replacement 2 for 1	1	6.3	0.5%	0.3	0.0%	0.0%
Alternative Ag Burning	8	33.1	2.7%	55.9	8.8%	
Dust Control Mitigation	1		0.0%	7.9	1.3%	
Engine Repower	4	18.6	1.5%	0.6	0.1%	0.1%
EV Vehicle Rebate	734	5.8	0.5%	0.7	0.1%	
Heavy-Duty Truck New Purchase	8	10.5	0.9%	0.0	0.0%	0.0%
Heavy-Duty Vehicle Replacement	16	40.3	3.3%	0.7	0.1%	0.1%
Locomotive Replacement	2	139.0	11.3%	5.4	0.8%	0.8%
Truck Replacement	32	68.1	5.6%		0.0%	0.0%
Wood Stove New Device	1,773		0.0%	500.0	79.1%	
Grand Total	2,726	1,225.8	100.0%	631.8	100.0%	10.6%

As shown in Table 3, less than 11% of PM10 reductions are attributable to engine combustion. While particulate matter emissions from wood stoves and agricultural burning are also harmful, this summary clearly shows that the projects funded by the SJVAPCD are unlikely to include the types of projects envisioned by the October Draft SREIR to be offset under the OG-ERA, which mostly involve reductions of engine combustion emissions, particularly reductions of diesel engine combustion emissions.³⁸

V. The October Draft SREIR Must Require All Feasible Mitigation Measures to Reduce Significant Impacts During Construction and Operation of the Project

I previously commented that the August Draft SREIR's approach to mitigating the substantial emissions resulting from construction and operation of the Project over its 21-year life is severely deficient. The October Draft SREIR fails to adequately address this problem.

V.A Project Construction Emissions

Combustion and Fugitive Dust Emissions

The October Draft SREIR makes only minor changes to one mitigation measure, MM 4.3-2 (Fugitive Dust Control Plan), that do nothing to address the substance of my prior comments on the August Draft SREIR, Section V, regarding mitigation for project

³⁸ See October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-138. ("Example projects mentioned in this SREIR and the 2015 FEIR include: Replacing or retrofitting diesel-powered stationary equipment with electric or other lower-emissions engines; Replacing or retrofitting diesel-powered school, transit, municipal, and other buses, car fleets, and maintenance equipment with electric or other lower-emission engines; Reducing emissions from public infrastructure sources; Funding lower-emission equipment for local businesses, schools, and institutions; Adding diesel particle filters; Upgrading to cleaner engines; and Making changes to fleets and trucks, implementing van pools or other trip-reduction programs.")

emissions, which thus remain applicable. I also previously addressed the lack of adequate mitigation in my comments on the 2015 Final EIR and provided a long list of additional feasible mitigation measures compiled and required by other agencies for fugitive dust control.³⁹ These comments remain applicable and are herewith incorporated by reference.

In addition, my colleague Dr. Phyllis Fox recommended a long list of feasible mitigation measures for combustion emissions in her comments on the 2015 Final EIR.⁴⁰ These mitigation measures are herewith incorporated by reference. I recommend that the County reevaluate the applicability of the described mitigation measures and explain in detail why each mitigation measure found not to be feasible, is not applicable.

Valley Fever

I previously commented on the August Draft SREIR that mitigation measure MM 4.3-6 (Valley Fever and Pandemics) is inadequate. The October Draft SREIR “clarifies” mitigation measure MM 4.3-6 to include the requirement for an informational handout on Valley Fever; training of construction personnel on proper use of personal protective equipment; and the requirement to provide a NIOSH-approved respirator upon request. In addition, MM 4.3-6 now requires a \$25 fee per individual well to be used by the County for continued Valley Fever education and outreach. Amended mitigation measure MM 4.3-6 remains inadequate.

I recommend that mitigation measure MM 4.3-6 be amended to require that evidence of training be provided to County’s Planning and Natural Resources Department within 24 hours of the training session, which is, *e.g.*, required by the 99 Houghton Industrial Park Project cited in my prior comments.

Further, over the past decade, my colleague Dr. Phyllis Fox and I have summarized studies and prepared a list of feasible mitigation measures developed by other agencies for reducing exposure to Valley Fever, which are discussed in a recent comment letter by Dr. Phyllis Fox (*see* Attachment Fox Comments at pp. 13-19). I recommend that the County consider these mitigation measures or discuss why each mitigation measure is not feasible here.

V.B Project Operational Emissions

As discussed in Comment II, operational emissions from stationary sources are significant and must be mitigated. I recommend that the County require that all emission increases be reduced by *first* evaluating the potential for onsite emission

³⁹ See October Draft SREIR, Vol. 8, AR 159172-159200.

⁴⁰ See AR 155605-155686.

reductions for each operator, and, if not feasible, to require offsets for all emissions below or equal to the offset emissions thresholds in District Rule 2201.

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Cont'd

VI. Conclusions and Recommendation

Based on the above-described analytical and mitigation failures, the October Draft SREIR does not provide the requisite information necessary for a decision on the Project. I recommend that the County revise Sections 4.3 Air Quality and 4.7 Greenhouse Gas Emissions based on the above discussion and urge the County to incorporate all feasible measures before resorting to offsets under the OG-ERA.

Please call me at (415) 492-2131 or e-mail at *petra.pless@gmail.com* if you have any questions about the comments in this letter.

Sincerely,

Petra Pless, D.Env.

0061-136

Errata to September Comments on August Draft SREIR: Revised Attachment 3

Attachment Fox Report

ADDENDUM B

**Report on the
October 2020
Draft Supplemental Recirculated Environmental
Impact Report for Revisions to the Kern County Zoning
Ordinance – 2020 A, Focused on
Oil and Gas Local Permitting**

**Prepared
for
Earthjustice**

By

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December 14, 2020

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1. INTRODUCTION

I commented on the air quality analysis contained in the Final Environmental Impact Report (FEIR) for revisions to Kern County Zoning Ordinance – 2015(C) focused on oil and gas permitting.¹ I also commented on the cumulative health risk assessment for this FEIR, which originally was released 5 days prior to the public hearing on the FEIR and was subsequently recirculated with a Draft Supplemental Recirculated Environmental Impact Report in August 2020 (Aug. DSREIR).²

In October 2020, Kern County released a revised version of the Draft Supplemental Recirculated Environmental Impact Report (Oct. DSREIR).³ In this report, I address two issues: (1) the failure of the Oct. DSREIR to evaluate public health impacts of significant construction and operational criteria pollutant emissions and (2) adequacy of the proposed mitigation for significant construction and operational air quality impacts. My analysis of these issues is presented below.

2. THE OCT. DSREIR FAILED TO EVALUTE PUBLIC HEALTH AND OTHER IMPACTS OF SIGNIFICANT CRITERIA POLLUTANT EMISSIONS

Emissions of the criteria pollutants NO_x, VOC, CO, SO_x, PM₁₀, and PM_{2.5} result in ambient concentrations of these pollutants that cause significant public health and other impacts when ambient air quality standards are exceeded. Construction and operational emissions are highly significant, which should have triggered ambient air quality modeling to assess impacts on sensitive receptors. Further, while well construction and well operation may occur in different geographic locations, their emissions can combine in the atmosphere, affecting the same sensitive receptors.

The definition of sensitive receptors in the Oct. DSREIR is too narrow to include all sensitive receptors. It should be expanded to include any location where individuals are located with compromised immune systems or other health conditions affected by air pollution such as asthma, cardiovascular disease, lung cancer, susceptibility to infection, wheezing, coughing and shortness of breath, among many others.⁴

¹ Phyllis Fox, Report on Final Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C), Focused on Oil and Gas Local Permitting, November 6, 2015 (Fox FEIR Comments), Administrative Record (“AR”) Bates 155605-155686.

² Letter from Phyllis Fox to Rachael Hooper, Shute, Mihaly & Weinberger LLP, September 11, 2020.

³ Kern County Planning and Natural Resource Department, Draft Supplemental Recirculated Environmental Impact Report (October 2020), Revisions to Title 19-Kern County Zoning Ordinance – (2020A), Focused on Oil and Gas Local Permitting, SCH# 2013081079, October 2020; <https://kernplanning.com/environmental-doc/oil-and-gas-sreir/>.

⁴ Herein, as discussed more in Comment 2.4.1 below, the term “sensitive receptor” refers to people that have an increased sensitivity to air pollution or environmental contaminants and places where such

These impacts cannot be identified and mitigated without converting construction and operational emissions reported in the Oct. DSREIR in pounds per day (lb/day) and tons per year (ton/yr) into ambient concentrations in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) that people, animals, and plants “breathe.” The concentrations in the atmosphere are what people, animals, and plants are exposed to and thus what causes the impacts. The only way to evaluate these impacts is by using air dispersion modeling to convert emissions into ambient concentrations that sensitive receptors will be exposed to. The Oct. DSREIR not only failed to conduct any air quality modeling, it failed to even recognize the potential for the overlap of impacts from well construction in one location with well operation in another location.

Even though the emissions of all criteria pollutants from both construction⁵ (Table 1) and operation (Table 2) greatly exceed significance thresholds expressed in lb/day and ton/yr, the Oct. DSREIR did not perform any criteria pollutant modeling to evaluate public health and other impacts that depend on ambient air quality where sensitive receptors are located. Instead, it argues:⁶

Ambient air quality modeling results for NO₂, SO₂, and CO, PM₁₀, and PM_{2.5} are sometimes warranted for large stationary sources near potentially sensitive receptors. Since the Project consists of Zoning Code Amendments that will regulate a broad range of oil and gas activities located throughout the Project Area, and excludes the types of large stationary sources (e.g., new and expanded cogeneration plants) that could warrant ambient air quality modelling, this modelling was not required to evaluate the potential significance of Project-related air emissions. TAC modelling to assess health risks was completed as described below, and the toxicity of criteria pollutants is discussed above.

This is wrong. First, TAC (Toxic Air Contaminant) modeling addresses toxic air contaminants, also known as hazardous air pollutants (e.g., HAPs such as benzene, hydrogen sulfide), not criteria pollutants (e.g., NO_x, SO_x, CO, VOC, PM₁₀, PM_{2.5}). Thus, it is not a substitute for ambient air quality modelling of criteria pollutants.

individuals may be present. The Oct. DSREIR defines sensitive receptors as including “residential communities, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Sensitive individuals with compromised immune systems, such as children and the elderly, may be exposed to emissions from construction and operation of the Project.” Oct. DSREIR, p. 4.3-30. The OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines, Section 4.6.3, February 2015 defines “sensitive receptor locations” as including “...young children and chronically ill individuals.”; <https://oehha.ca.gov/media/downloads/crn/2015guidancemanual.pdf>. The proposed Ordinance defines the term more narrowly to refer to dwelling units, buildings or structures used for public assembly, churches, institutions, and hospitals. Oct. DSREIR, Chapter 3, Attachment A, p. 5 (proposed section 19.98.060).

⁵ Oct. DSREIR, Table 4.3-12 to 4.3-19. Table 4.3-19, for example, shows that total well construction NO_x emissions in 2035 exceed significance thresholds as follows: NO_x: 4,221 ton/yr compared to 10 ton/yr; VOC: 1,491 ton/yr compared to 10 ton/yr; CO: 9,174 ton/yr compared to 100 ton/yr; PM₁₀: 431 ton/yr compared to 15 ton/yr; PM_{2.5} compared to 147 ton/yr.

⁶ Oct. DSREIR, p. 4.3-122, pdf 124.

Criteria pollutant emissions also result in significant public health as well as biological and other impacts. The Oct. DSREIR contains a generic discussion of the effects of these pollutants unrelated to the Project.⁷ However, the Oct. DSREIR failed to estimate the increase in these pollutants, relative to baseline concentrations to evaluate the Project's public health and other impacts, thus rendering the DSREIR inadequate as an informational document under CEQA.

Second, modeling is routinely performed for sources that are not "large stationary sources." The Oct. DSREIR fails to define the term, "large stationary source," or provide any support for its assertion that air quality modeling is only performed for "large stationary sources." My experience working in the oil, gas, refining, and other industries with numerous "large stationary sources" indicates that the emissions from this Project's construction and operation exceed those from many "large stationary sources" unless aggressively mitigated with best available control technology (BACT) or lowest achievable emission rate (LAER) controls.

The key consideration in deciding if modeling is required is the magnitude of the emissions, the ambient air quality in the impacted area, and presence of sensitive receptors. In this case, the construction (Table 1) and operational emissions (Table 2) exceed significance thresholds by huge amounts, far more than emissions from conventional "large stationary sources," which typically have pollution controls to reduce the emissions. Further, the Oct. DSREIR failed to identify a single "large stationary source" as a benchmark for its decision. Total annual well construction emissions, for example, exceed the NO_x significance threshold by a factor of 422, VOCs by a factor of 149, and PM₁₀ by a factor of 29.⁸ Further, the San Joaquin Valley Air Basin, where the Project will be located, has some of the worst air pollution in the United States. This alone warrants ambient air quality modeling. See Comment 2.3.

Further, in *Sierra Club v. County of Fresno*, known as the "Friant Ranch Decision," the California Supreme Court affirmed CEQA's mandate to protect public health and safety by holding that an EIR fails as an informational document under CEQA when it fails to correlate a project's significant air quality impacts with potential human health impacts or explain why such further evaluation is infeasible.⁹ An EIR must make a "reasonable effort to substantively connect a project's air quality impacts to likely health consequences."¹⁰

⁷ Oct. DSREIR, pp. 4.3-11 to 4.3-18.

⁸ Oct. DSREIR, Table 4.3-19.

⁹ *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 (referred to as "the Friant Ranch Decision").

¹⁰ Cal. Pub. Res. Code § 21005, 21168.5; Cal. Code Regs. tit. 14, § 15151.

The Oct. DSREIR failed to model the ambient air pollutant concentrations resulting from the Project's criteria pollutant emissions and failed to connect them with likely health consequences. Ambient concentrations of criteria pollutants are essential to determine public health impacts. The Oct. DSREIR also failed to disclose the resulting public health impacts from increases in ambient concentrations of ozone, PM_{2.5}, and other criteria pollutants due to highly significant increases in construction and operational emissions in Tables 1 and 2, both individually and cumulatively.

Project cumulative emissions are particularly important here because emissions will occur from the simultaneous construction of new wells and the operation of existing wells constructed under this Project within the San Joaquin Valley Air Basin. Reviewers of the Oct. DSREIR cannot convert emissions expressed in lb/day and ton/yr into ambient concentrations that they would be exposed to from simultaneous construction of one set of wells and operation of other sets of wells in the same air basin.

The Oct. DSREIR also failed to explain why evaluation of air quality impacts of air pollutant emissions is infeasible. In fact, evaluation of air quality impacts using dispersion modeling is feasible and routinely conducted in CEQA documents.

2.1. Increases in Construction Emissions of NO_x, VOC, CO, SO_x, PM₁₀, and PM_{2.5} Are Highly Significant and Unmitigated

The Oct. DSREIR concluded that since total annual construction emissions, summarized in these comments in Table 1¹¹ exceed the SJVAPCD construction emission significance thresholds and as they would not be offset, they would result in "a cumulatively considerable net increase in criteria pollutants for which the Project region is nonattainment and, therefore, the construction impacts would be significant." The Oct. DSEIR also concluded that the impacts would be significant and unavoidable after mitigation.¹²

¹¹ Oct. DSREIR, Summary of Construction Emissions, pp. 4.3-109/110, pdf 111-112.

¹² Oct. DSREIR, p. 4.3-109, pdf 111 and p. 4.3-160, pdf 162.

Table 1: Total Annual Estimated Emissions from Well Construction¹³

Year	Subarea	Criteria Emissions (tons per year)					
		NO _x	VOC	CO	SO _x	PM ₁₀	PM _{2.5}
2012	Western	7,598.80	1,149.70	5,166.48	7.46	473.13	307.64
	Central	561.81	160.23	427.96	0.52	30.46	19.35
	Eastern	1,862.63	122.33	1,332.48	1.71	119.78	77.24
	TOTALS	10,023.24	1,432.26	6,926.91	9.70	623.37	404.22
2035	Western	2,446.44	939.60	5,387.69	8.32	269.95	90.27
	Central	846.88	439.69	1,300.10	1.60	54.36	20.98
	Eastern	927.81	111.75	2,486.35	3.30	106.54	35.61
	TOTALS	4,221.13	1,491.05	9,174.14	13.22	430.85	146.85
SJVAPCD Construction Emissions Threshold		10	10	100	27	15	15

These significant emissions, coupled with the fact that air pollution in the San Joaquin Valley Air Basin where the Project is located is one of the worst in the United States (Comment 2.3), should have triggered ambient air quality modeling of both construction and operational (Comments 2.1-2.3) emissions as well as simultaneous construction and operation to identify the locations where the ambient air quality impacts would occur so that mitigation could be identified in the affected locations. The Oct. DSREIR proposes the use of Development Mitigation Contracts (DMCs) and Voluntary Emission Reduction Agreements (VERAs)¹⁴ under the “Oil and Gas Emission Reduction Agreement” (OG-ERA) entered into on August 18, 2016 under MM 4.3-8.¹⁵ The OG-ERA agreement addresses significant construction and operational emissions of NO_x, VOCs, and PM.¹⁶

However, as discussed in Comment 2.1, the Oct. DSREIR did not include any ambient air quality modeling of criteria pollutants, which is essential to locate impacted areas where DMCs and VERAs must be implemented to mitigate impacts under MM 4.3-8. While DMCs and VERAs are possible under the OG-ERA, I am not aware of any that have been developed pursuant to the OG-ERA and none are cited in the Oct. DSREIR.¹⁷ Instead, fees have been paid to the SJVAPCD in lieu of actual on-the-ground mitigation at the point of impact. Fees do not mitigate significant air quality impacts

¹³ Oct. DSREIR, Table 4.3-19, p. 4.3-109, pdf 111.

¹⁴ Oct. DSREIR, p. 4.3-130/131, pdf 132-133.

¹⁵ Oct. DSREIR, p. 4.3-130 (the Oil and Gas Emission Reduction Agreement or OG-ERA).

¹⁶ Oct. DSREIR, p. 4.3-130, pdf 132.

¹⁷ The Oct. DSREIR “describes what has occurred under the OG-ERA since 2015.” Oct. DSREIR, p. 4.3-136, pdf 138. The Oct. DSREIR discusses fee amounts collected by the County and spent or encumbered by the SJVAPCD annually but makes no mention of any emissions reduction projects undertaken by operators directly pursuant to the OG-ERA. Oct. DSREIR, pp. 4.3-136 to 4.3-141, pdf 138 to 143.

unless they are used to implement DMCs/VERAs at the point of impact. Thus, the Oct. DSREIR fails as an informational document under CEQA.

2.2. Increases in Operational Emissions of NO_x, VOC, CO, SO_x, PM₁₀, and PM_{2.5} Are Highly Significant

The Oct. DSREIR estimated total operational emissions in 2012 (baseline) and in 2035 from: (1) oil and gas production facilities that are stationary permitted sources;¹⁸ (2) emissions of fugitive VOCs;¹⁹ (3) emissions from routine business travel;²⁰ (3) emissions from routine well operations;²¹ (4) emissions from annual facility inspections;²² (5) emissions from routine well maintenance;²³ and (6) emissions from mobile sources.²⁴ However, the Oct. DSREIR failed to use this information to estimate the total change in emissions relative to the 2012 baseline due to the Project and failed to compare the resulting total increase in emissions from all Project sources with SJVAPCD significance thresholds, leaving that task to reviewers, thus failing as an informational document under CEQA.

The Oct. DSREIR also failed to convert these estimated emissions into ambient concentrations to evaluate public health and other impacts of criteria pollutant emissions, specifically stating that air quality modeling was not required to evaluate potential impacts because the Project “excludes the types of large stationary sources (e.g., new and expanded cogeneration plants) that could warrant ambient air quality modeling...”²⁵ However, this is incorrect. Air quality modeling is not limited to large stationary sources, but rather to emissions from any source(s) that exceed the significance thresholds. Thus, the Oct. DSREIR fails as an informational document under CEQA.

I summarized the operational emissions reported in Oct. DSREIR Tables 4.3-20 to 4.3-26 and compared them to SJVAPCD significance thresholds. My analysis is summarized in Table 2, which indicates that NO_x, VOC, CO, SO_x, PM₁₀, and PM_{2.5}

¹⁸ Oct. DSREIR, Table 4.3-20, pdf 114-115.

¹⁹ Oct. DSREIR, Table 4.3-21, pdf 116.

²⁰ Oct. DSREIR, Table 4.3-22, pdf 118.

²¹ Oct. DSREIR, Table 4.3-23, pdf 120.

²² Oct. DSREIR, Table 4.3-24, pdf 121.

²³ Oct. DSREIR, Table 4.3-25, pdf 122.

²⁴ Oct. DSREIR, Table 4.3-26, pdf 123.

²⁵ Oct. DSREIR, p. 4.3-122.

emissions are highly significant based on the emissions as estimated in the Oct. DSREIR.

**Table 2: Net Increase in Project Operational Emissions (ton/yr)
in 2035 Relative to 2012 Baseline**

Source	NO _x	VOC	CO	SO _x	PM ₁₀	PM _{2.5}
Stationary Sources	1,025	1,756	1,610	183	476	476
Fugitive VOCs		699				
Routine Business Travel	-65	-15	-137	0.3	6.4	1.4
Routine Well Operations	34	804	-120	0.2	183	18
Annual Facility Inspections	-0.2	-0.3	-2.7	0	103	10
Routine Well Maintenance	-760	-61	905	1.25	-12	-67
Total	234	3,183	2,255	185	756	438
Significance Threshold ²⁶	10	10	100	27	15	15
Significant?	Yes	Yes	Yes	Yes	Yes	Yes

The Oct. DSREIR drew a similar conclusion, without showing any of the supporting calculations and based it on the wrong significance thresholds – construction rather than operation.²⁷

In summary, emissions from permitted stationary sources, permit-exempt equipment, and mobile sources at a Project level would result in emissions levels that would exceed the SJVAPCD Operational Emissions Threshold. Only the permitted stationary sources would be required to be offset because it is a condition of SJVAPCD air permit. Since the remaining emissions would exceed the SJVAPCD Construction Emissions Threshold and would not be offset, operational emission would result in considerable net increase of the criteria pollutants NO_x, VOC, CO, PM₁₀, and PM_{2.5} and would be a significant impact.

2.3. Health and Biological Impacts of Significant Increases in NO_x, VOCs, PM₁₀, and PM_{2.5} Emissions Were Not Evaluated

The ambient air in the San Joaquin Valley Air Basin where the Project is located currently violates federal and/or state ambient air quality standards on ozone, PM₁₀,

²⁶ SJVAPCD, Air Quality Thresholds of Significance – Criteria Pollutants, March 19, 2015; <http://www.valleyair.org/transportation/0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf>.

²⁷ Oct. DSREIR, p. 4.3-122, pdf 124.

and PM2.5 established to protect public health.²⁸ The Clean Air Act, for example, directs the EPA to establish air quality criteria for those pollutants with “emissions of which, in his judgment, cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare.”²⁹ Section 109(b)(1) defines primary standards as ones “the attainment and maintenance of which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect public health.”³⁰ Under section 109(b)(2), a secondary standard must “specify a level of air quality the attainment and maintenance of which, in the judgment of the Administrator, based on such criteria, is requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of [the] pollutant in the ambient air.”³¹ The Oct. DSREIR summarized the standards developed in response to these rules,³² but failed to determine whether the Project will comply with them.

Even though air pollution in the San Joaquin Valley Air Basin where the Project is located is one of the worst in the United States, the Oct. DSREIR failed to disclose this fact or model the emissions summarized in Tables 1 and 2. Modeling is required to determine ambient air quality concentrations, which are required to evaluate air quality, public health, and biological impacts from Project emissions. The American Lung Association (ALA), for example, has ranked ozone and particulate matter ambient concentrations in the United States as follows:³³

²⁸ Oct. DSREIR, Table 4.3-2, pdf 8-9.

²⁹ 42 U.S.C. § 7408(a)(2).

³⁰ The legislative history of Section 109 indicates that a primary standard is to be set at “the maximum permissible ambient air level . . . which will protect the health of any [sensitive] group of the population,” and that for this purpose “reference should be made to a representative sample of persons comprising the sensitive group rather than to a single person in such a group.” S. Rep. No. 91-1196, 91st Cong., 2d Sess. 10 (1970).

³¹ Under CAA Section 302(h) (42 U.S.C. § 7602(h)), effects on welfare include, but are not limited to, “effects on soils, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being.”

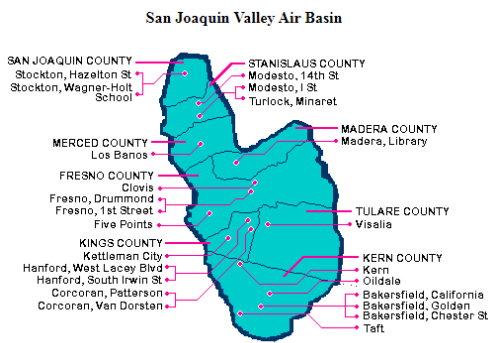
³² Oct. DSREIR, Table 4.3-1.

³³ American Lung Association (ALA), Most Polluted Cities; <https://www.stateoftheair.org/city-rankings/most-polluted-cities.html>.

Figure 1: Most Polluted Cities in the United States for Ozone and Particulate Matter³⁴

By Ozone	By Year Round Particle Pollution	By Short-Term Particle Pollution
#1: Los Angeles-Long Beach, CA	#1: Bakersfield, CA	#1: Fresno-Madera-Hanford, CA
#2: Visalia, CA	#2: Fresno-Madera-Hanford, CA	#2: Bakersfield, CA
#3: Bakersfield, CA	#3: Visalia, CA	#3: San Jose-San Francisco-Oakland, CA
#4: Fresno-Madera-Hanford, CA	#4: Los Angeles-Long Beach, CA	#4: Fairbanks, AK
		#5: Yakima, WA

Bakersfield and Fresno-Madera-Hanford are in the San Joaquin Valley Air Basin (Figure 2) and would be affected by the Project. In fact, Bakersfield, the largest city in Kern County, the location of the Project, will be surrounded by new wells developed under this Project.³⁵

Figure 2: San Joaquin Valley Air Basin³⁶

2.4. Emissions of Ozone

The SJVAPCD, where the Project is located, is in “severe” nonattainment with the state one-hour ozone standard and in “extreme” nonattainment with the federal 8-hour ozone standard.³⁷ Many days in Kern County, where the Project is located, exceed the 1-hour and 8-hour ozone standards.³⁸

³⁴ Ibid.

³⁵ Map of Population by County Subdivision in Kern County; <https://statisticalatlas.com/county/California/Kern-County/Population>.

³⁶ CARB, San Joaquin Valley Air Basin PM10; https://ww3.arb.ca.gov/aqd/oldpm10_jsa/bsn2sjv.htm.

³⁷ SJVAPCD, Ambient Air Quality Standards & Valley Attainment Status; <https://valleyair.org/aqinfo/attainment.htm>.

³⁸ Oct. DSREIR, Table 4.3-3. See also Union of Concerned Scientists, Clearing the Air in the San Joaquin Valley, p. 8, October 2004; <http://www.kirschfoundation.org/care/documents/centralvalleyfinalnewp17.pdf>.

2.4.1. Public Health Impacts

Project operation will emit 234 ton/yr of NO_x and 3,183 ton/yr of VOC. Table 2. These emissions will overlap with construction emissions discussed above, as some wells will be constructed while others are operating. NO_x and ROG are converted into ozone in the atmosphere and thus are known as ozone precursors.

Reactive organic gases (ROGs) are a subset of VOCs that include all VOCs except those exempted by federal law.³⁹ For all practical purposes, the terms ROG and VOC are interchangeable.⁴⁰ The Oct. DSREIR failed to disclose whether emissions reported as VOCs in various tables are “ROG,” or whether they exclude exempt VOCs. The Oct. DSREIR uses the SJVAPCD significance threshold for ROG (10 ton/day for both construction and operational emissions),⁴¹ while all emission tables report VOCs but compare them to the SJVAPCD’s significance threshold for ROG. Tables 4.3-15, 4.3-16, and 4.3-18 report emissions as “VOC” but the footnotes to these tables do not include VOCs, but rather only “ROG = reactive organic gases.” Elsewhere, a footnote to Table 4.3-21 states: “The SJVAPCD threshold is set for Reactive Organic Gases (ROG). The Kern County California Environmental Quality Act Implementation Document (June 2004) states the equivalence of ROG and VOC.” Thus, in these comments, I assume VOCs = ROG, which is a commonly used assumption.

The significance thresholds for both NO_x and VOCs for both construction and operation are 10 ton/yr. Thus, construction emissions exceed the NO_x significance threshold by a factor of 422 and the VOC significance threshold by a factor of 149. In addition, operational emissions of NO_x exceed the significance threshold by a factor of 23 and the VOC significance threshold by a factor of 318. Construction of new wells and operation of existing wells will occur simultaneously, resulting in much greater emissions than construction or operation considered in isolation, as analyzed in the Oct. DSREIR.

While some of the NO_x and VOC emissions would be offset (from new permitted stationary sources) under SJVAPCD rules,⁴² and the balance purportedly

³⁹ SJVAPCD Rule 1020, Section 3.53 and U.S. EPA, Ground-level Ozone Pollution, Complete List of VOC Exemption Rules; <https://www.epa.gov/ground-level-ozone-pollution/complete-list-voc-exemption-rules>.

⁴⁰ SJVAPCD, 2016 Ozone Plan for 2008 8-Hour Ozone Standard, Adopted June 16, 2016, p. 22; http://valleyair.org/Air_Quality_Plans/Ozone-Plan-2016/Adopted-Plan.pdf.

⁴¹ Oct. DSREIR, p. 4.3-8, 4.3-94, Table 4.3-10; 1 SJVAPCD, Air Quality Significance Thresholds of Significance – Criteria Pollutants; <http://www.valleyair.org/transportation/0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf>.

⁴² Oct. DSREIR, p. 4.3-72.

would be offset pursuant to the OG-ERA entered into on August 18, 2016 under MM 4.3-8,⁴³ these are not valid mitigation under CEQA unless they mitigate impacts at the same time and place as the Project's impacts. See Comments 2.4 and 3. The Oct. DSREIR does not propose that offsets or OG-ERA projects (i.e., projects funded with Mitigation Measure 4.3-8 fees or instituted by individual operators) mitigate impacts at the place where the ambient air quality impact occurs. As the Oct. DSREIR did not perform any air quality modeling for either Project construction or operation to determine where the impacts occur, it is impossible to select offsets or OG-ERA projects that will mitigate the impacts where the impacts occur.

Thus, significant public health impacts from ambient ozone concentrations can be expected due to increases in VOC and NO_x emissions from the Project in an air basin that currently violates air quality standards on ozone. Further, a recent study has demonstrated air pollutants, especially NO_x, may enhance population susceptibility to death from COVID-19.⁴⁴

The Oct. DSREIR failed to disclose or estimate the public health impacts from increases in ambient ozone concentrations due to increases in Project emissions of ozone precursors. The Oct. DSREIR also failed to disclose or estimate the public health impacts from significant increases in other pollutants from Project operation summarized in Table 2, or from Project construction summarized in Table 1.

Ozone, the main component of smog, is formed in the atmosphere from precursor pollutants rather than being directly emitted. Ozone forms as a result of VOCs and NO_x reacting in the presence of sunlight.⁴⁵ Table 1 indicates that Project construction would emit highly significant amounts of NO_x and VOCs. Table 2 indicates that Project operation would also emit highly significant amounts of NO_x and VOC.

Ozone damages lung tissue and reduces lung function, affecting people with impaired respiratory systems as well as healthy children and adults, especially among people of color and those living in poverty.⁴⁶ The Oct. DSREIR explained that "high concentrations of ground-level ozone can adversely affect the human respiratory

⁴³ Oct. DSREIR, p. 4.3-130 (the Oil and Gas Emission Reduction Agreement or OG-ERA).

⁴⁴ Donghai Liang and others, Urban Air Pollution May Enhance COVID-19 Case-Fatality and Mortality Rates in the United States, *The Innovation*, vol. 1, 100047, November 25, 2020; <https://www.cell.com/action/showPdf?pii=S2666-6758%2820%2930050-3>.

⁴⁵ Oct. DSREIR, p. 4.3-11.

⁴⁶ U.S. EPA, Ground-level Ozone Pollution; <https://www.epa.gov/ground-level-ozone-pollution/ground-level-ozone-basics>.

system” and aggravate many respiratory ailments as well as cardiovascular disease⁴⁷ and damage natural ecosystems.⁴⁸ However, the Oct. DSREIR did not evaluate the impact of ground-level ozone from the Project’s VOC and NOx emissions on nearby sensitive receptors.

The significant increase in Project VOC emissions, 3,183 ton/yr compared to a significance threshold of 10 ton/yr, combined with the significant increase in NOx emissions, 234 ton/yr compared to a significance threshold of 10 ton/yr (Table 2), indicates that Project VOC emissions will aggravate existing violations of ambient air quality standards on ozone which were established to protect public health, resulting in significant public health impacts from ozone in surrounding communities, including Bakersfield, Fresno, Madera, Visalia, and Hanford.

The Oct. DSREIR made no attempt to quantify the impact of either construction or operational ozone-precursor emissions (NOx and VOCs) on public health in the San Joaquin Valley Air Basin. Instead, it proposes mitigation measure MM 4.3-8 to reduce emissions to net zero. However, unless the OG-ERA adopted as mitigation under MM 4.3-8 reduces ozone concentrations at the impacted locations, OG-ERA projects will not mitigate significant impacts. As no ambient air quality modeling was performed to determine the magnitude and location of the on-the-ground impacts, and the OG-ERA lacks any requirement that pollution-reducing projects be located in impacted locations, there is no evidence in the record to demonstrate that MM 4.3-8 will mitigate significant ozone and other air quality impacts. Comment 2.4.1. The OG-ERA only directs that mitigation projects be selected on the basis of cost effectiveness, not to mitigate significant air quality impacts.

Kern County, in the San Joaquin Valley Air Basin where the Project is located, is ranked as the fifth most ozone-polluted county in the entire United States.⁴⁹ Four groups of people are especially vulnerable to the effects of breathing ozone: (1) children and teens; (2) anyone 65 and older; (3) people with existing lung diseases, such as asthma and chronic obstructive pulmonary disease (also known as COPD, which includes emphysema and chronic bronchitis); and (4) people who work or exercise outdoors.⁵⁰ A large number of sensitive receptors exist in Kern County, where the wells will be drilled. About 43% of the population of Kern County (900,202) resides in

⁴⁷ Oct. DSREIR, p. 4.3-11.

⁴⁸ Oct. DSREIR, p. 4.3-11.

⁴⁹ American Lung Association, State of the Air, 2020 (ALA 2020), p. 25; <https://www.stateoftheair.org/assets/SOTA-2020.pdf>.

⁵⁰ American Lung Association, Who Is At Risk from Breathing Ozone?; <https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/ozone>.

Bakersfield (384,145),⁵¹ where there are numerous sensitive receptors. The American Lung Association reports that Kern County has the following number of sensitive receptors:⁵²

- 259,180 under 18;
- 98,347 that are 65 and over;
- 16,001 with pediatric asthma;
- 53,894 with adult asthma;
- 27,503 with COPD;
- 39,003 with cardiovascular disease;
- 596,328 people of color; and
- 177,021 living in poverty.

Further, a major study found evidence that people with lung cancer faced greater risk from ozone and other outdoor air pollutants than others. The 2016 study tracked the air pollution levels from 1988 to 2011 experienced by more than 350,000 cancer patients in California. The researchers found that ozone and other air pollutants shortened their survival.⁵³ Numerous studies, cited in ALA 2020, document the serious public health impacts of ozone. Thus, it is critical that public health impacts from the huge increases in ozone precursors that will result from this Project be analyzed and fully mitigated. The emissions purportedly are mitigated using offsets and OG-ERA projects. Comment 2.4.1. However, there is no evidence in the record that their air quality impacts will be mitigated because there is no requirement that offsets or OG-ERA projects be located such that they will reduce ambient air quality impacts caused by construction and operational emissions at the location where the ambient air quality impacts occur.

2.4.2. Biological Impacts

High levels of ozone also have significant biological impacts that were not disclosed in the Oct. DSREIR. Ozone causes considerable damage to birds and plants, including agricultural crops and plants in natural ecosystems.

Ozone is a powerful oxidant that can cause direct, irreversible damage to birds' lungs. Long-term exposure can lead to inflammation, ruptured blood vessels, and lung

⁵¹ U.S. Census, Kern County, California; Bakersfield city, California;
<https://www.census.gov/quickfacts/kerncountycalifornia>.

⁵² ALA 2020, p. 22.

⁵³ S. P. Eckel and others, Air Pollution Affects Lung Cancer Survival, *Thorax*, v. 71, 2016, pp. 891-898;
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5400105/>.

failure.⁵⁴ Ozone also indirectly impacts birds via changes to habitat conditions, food supplies, and/or species interactions.⁵⁵

Elevated ozone also has significant impacts on plants. Ozone damages plants by entering leaf openings called stomata, oxidizing plant tissue during respiration. This damages the plant leaves and causes reduced survival.⁵⁶ It also reduces primary productivity and inhibits growth rate and biomass of plants, especially deciduous trees. It also reduces plant species richness and community composition, chemically impedes plant-pollinator interactions, and changes foliar quality and content of nitrogen. Ozone also increases plant susceptibility to damage and disease, impacts soil microbial communities, and increases secondary (defensive) plant compounds to reduce herbivory by insects.⁵⁷

The San Joaquin Valley, where the Project is located, is an important agricultural region. Kern County, for example, grows over 80% of the total national production of carrots. Other important vegetable crops grown in the county include potatoes, lettuce, garlic, onions, tomatoes, bell peppers, and watermelons.⁵⁸ A March 2020 study concluded that the poor ozone air quality in the San Joaquin Air Basin costs farmers about \$1 billion annually in fruit and nut productivity.⁵⁹

The Oct. DSREIR failed to disclose any of these impacts of the significant increase in construction (Table 1) and operational (Table 2) ozone precursors (NO_x and VOC) emissions that would be caused by the Project. Thus, the Oct. DSREIR fails as an informational document under CEQA.

⁵⁴ Olivia V. Sanderfoot and Tracey Holloway, Air Pollution Impacts on Avian Species Via Inhalation Exposure and Associated Outcomes, *Environmental Research Letters*, v. 12, 2017; <https://iopscience.iop.org/article/10.1088/1748-9326/aa8051/pdf>; see also: Kenneth Quin, Birds Suffer from Air Pollution, Just Like We Do, July 23, 2015; <https://ca.audubon.org/news/birds-suffer-air-pollution-just-we-do#:~:text=Direct%20Impacts%20on%20Birds,blood%20vessels%2C%20and%20lung%20failure>.

⁵⁵ Yuanning Liang and others, Conservation Cobenefits from Air Pollution Regulations: Evidence from Birds, PNAS Latest Articles, National Academy of Sciences, 2020; <https://www.pnas.org/content/early/2020/11/23/2013568117>.

⁵⁶ National Park Service, Ozone Effects on Plants; <https://www.nps.gov/subjects/air/nature-ozone.htm#:~:text=Ozone%20causes%20considerable%20damage%20to,leaves%20and%20causes%20reduced%20survival>.

⁵⁷ Ibid.

⁵⁸ University of California Cooperative Extension, Kern County Overview; https://vric.ucdavis.edu/virtual_tour/kern.htm#:~:text=Kern%20County%20Overview&text=Kern%20County%20is%20the%20leading,%2C%20bell%20peppers%2C%20and%20watermelons.

⁵⁹ Chaopeng Hong and others, Impacts of Ozone and Climate Change on Yields of Perennial Crops in California, *Nature Food*, vol. 1, pp. 166-172, 2020; <https://www.nature.com/articles/s43016-020-0043-8>

2.5. Emissions of Particulate Matter (PM₁₀, PM_{2.5})

The SJVAPCD also is in nonattainment with the state PM₁₀ and PM_{2.5} standards and the federal PM_{2.5} standard.⁶⁰ Thus, significant public health impacts can be expected due to highly significant increases in PM_{2.5} and PM₁₀ emissions from Project construction and operation. Tables 1 and 2. Further, additional PM_{2.5}, referred to as “secondary PM_{2.5}”, is formed in the atmosphere by photochemical oxidation reactions of precursor gases including SO_x, NO_x, and VOCs.⁶¹ This secondary PM_{2.5} is not included in Tables 1 and 2. The Oct. DSREIR failed to disclose the public health impacts from increases in PM_{2.5} and PM₁₀ emissions.

Table 1 indicates that Project construction will increase PM₁₀ emissions in 2035 by 431 ton/yr, compared to a significance threshold of 15 ton/yr, or a factor of 29 times higher than the significance threshold. Table 1 also indicates that Project construction will increase PM_{2.5} emissions by 147 ton/yr, compared to a significance threshold of 15 ton/yr, or a factor of 10 times higher than the significance thresholds.

Table 2 indicates that Project operation will increase PM₁₀ emissions by 756 ton/yr, compared to a significance threshold of 15 ton/yr, or a factor of 50 times higher than the significance threshold. Table 2 also indicates that Project operation will increase PM_{2.5} emissions by 438 ton/yr, compared to a significance threshold of 15 ton/yr, or a factor of 29 times higher than the significance threshold.

These highly significant emissions will increase ambient concentrations of PM_{2.5} and PM₁₀, which currently exceed state and federal ambient air quality standards in the San Joaquin Valley Air Basin. As these standards were set to protect public health, significant public health impacts can be expected in Kern County and other adjacent areas. The Oct. DSREIR failed to disclose the public health impacts from increases in ambient concentrations of PM_{2.5} and PM₁₀ due to increases in PM_{2.5} and PM₁₀ emissions, thus failing as an informational document under CEQA.

Kern County, where the Project is located, is ranked by the ALA as the third most polluted county for short-term particle pollution (24-hour PM_{2.5}) in the United States. The ALA reports that the number of sensitive receptors in Kern County who would be affected by PM_{2.5} emissions include:⁶²

⁶⁰ SJVAPCD, Ambient Air Quality Standards & Valley Attainment Status; <https://valleyair.org/aqinfo/attainment.htm>.

⁶¹ U.S. EPA, Policy Assessment for the Review of the National Ambient Air Quality Standards for Particulate Matter, External Review Draft, p. 2-9, pdf 37; https://www.epa.gov/sites/production/files/2019-09/documents/draft_policy_assessment_for_pm_naaqs_09-05-2019.pdf.

⁶² ALA 2020, p. 23.

- 259,180 under 18;
- 98,347 that are 65 and over;
- 16,001 with pediatric asthma;
- 53,894 with adult asthma;
- 27,503 with COPD;
- 348 with lung cancer
- 39,003 with CV disease;
- 208,055 who ever smoked;
- 596,328 people of color; and
- 177,021 living in poverty.

Kern County is ranked by the ALA as the most polluted county for year-round particle pollution (annual PM2.5) and as the third most polluted county for short-term particle pollution in the entire United States, with the same number of sensitive receptors affected as disclosed *supra* for short-term particle pollution (24-hour PM2.5).⁶³

Bakersfield, the largest city in Kern County, is ranked by the ALA as the second most-polluted city in the entire United States for short-term particle pollution (24-hour PM2.5).⁶⁴ Fresno-Madera-Hanford, CA, within the San Joaquin Valley Air Basin, is ranked by the ALA as the city with the worst short-term particle pollution (24-hour PM2.5).⁶⁵ Bakersfield is also ranked by the ALA as the most-polluted city in the entire United State for year-round particle pollution (annual PM2.5). The number of exposed sensitive receptors is the same as noted above for 24-hour PM2.5.⁶⁶

In sum, there is ample evidence that NO_x, VOC, PM2.5, and PM10 emissions from the Project have the potential to result in significant public health impacts to a significant number of sensitive receptors in the San Joaquin Valley. The Oct. DSREIR failed to disclose the public health impacts from breathing air polluted by the increases in NO_x, VOCs, PM2.5, and PM10 emissions disclosed in the Oct. DSREIR but not modelled, thus failing as an informational document under CEQA.

The Oct. DSREIR relies on the OG-ERA to mitigate significant construction and operational impacts.⁶⁷ The OG-ERA allows individual operators to undertake their own pollution reducing projects, subject to air district approval. However, it is likely that most operators will pay a fee to the SJVAPCD, leaving mitigation up to the District.

⁶³ ALA 2020, p. 23-24.

⁶⁴ ALA 2020, p. 20.

⁶⁵ ALA 2020, p. 5, 20.

⁶⁶ ALA 2020, p. 21.

⁶⁷ Oct. DSREIR, pp. 4.3-130 to 4.3-143 and Appendix C.

The location of the OG-ERA projects, both those of individual operators and those funded with fees, will be determined outside of CEQA review, preventing public review. Further, the OG-ERA does not require any modeling to determine if mitigation projects reduce ambient air quality impacts at the locations impacted by Project emissions.

Thus, this post-hoc mitigation arrangement is not valid mitigation under CEQA. Mitigation must occur at the location where impacts occurs. The location of the impact(s) can only be determined using air quality modeling to convert the emissions summarized in Tables 1 and 2 into ambient concentrations. This analysis is missing from the Oct. DSREIR.

Further, future specification of OG-ERA projects by both the SJVAPCD and individual operators prevents the reviewing public from assessing the ability of proposed pollution-reducing projects to reduce increases in ambient concentrations of NO_x, VOCs, PM_{2.5} and PM₁₀ at the reviewing public's locations.

Finally, the Oct. DSREIR fails to specify that OG-ERA projects funded by the SJVAPCD or implemented by operators will be required for both PM₁₀ and PM_{2.5}, instead referring generally only to PM.⁶⁸ The OG-ERA only applies to VOCs, NO_x, and PM₁₀.⁶⁹ Significant amounts of PM_{2.5} will also be emitted, 438 ton/yr PM_{2.5} and 756 ton/yr PM₁₀, compared to significance thresholds of 15 ton/yr. The PM_{2.5} emissions, which are much more toxic from a public health standpoint, are excluded from the Agreement.⁷⁰

The Oct. DSREIR tap dances around the omission of PM_{2.5} by arguing that PM_{2.5} is a subset of PM₁₀ and by asserting that the SJVAPCD addresses PM_{2.5} and PM₁₀ jointly in its attainment plans and SIP strategies and that CARB has accepted this approach.⁷¹ However, the relative amounts of PM_{2.5} and PM₁₀ in any given OG-ERA project proposed to mitigate Project impacts can vary significantly from the relative amounts of PM_{2.5} and PM₁₀ from Project operations. Thus, any OG-ERA mitigation project must have the same relative amounts of PM_{2.5} and PM₁₀ as the Project impacts it proposes to mitigate.

⁶⁸ Oct. DSREIR, pp. 4.3-66/67.

⁶⁹ Oct. DSREIR, Appendix C, Oil and Gas Emission Reduction Agreement, (20160168) KC Agreement # 890-2016, pdf 435; https://psbweb.co.kern.ca.us/UtilityPages/Planning/EIRS/OG_SREIR/aVol2/Oil_Gas_SREIR_Oct%202020_Vol%202_Appendices%20A%20through%20E.pdf.

⁷⁰ Ibid., p.3 ("Mitigation of Criteria Pollutants" defined as ROG, NO_x, and PM₁₀). ROGs are a subset of VOCs that include all organic gases except those exempted by federal law. Oct. DSREIR, p. 4.3-18.

⁷¹ Oct. DSREIR, p. 4.3-134.

Further, the OG-ERA does not require that mitigation projects occur prior to or at the time of the drilling and other sources of emissions. Thus, there is no basis to conclude that Mitigation Measure 4.3-8 and the OG-ERA would mitigate ambient air quality impacts and associated public health impacts of VOCs, NO_x, PM₁₀, and PM_{2.5}.

Regardless, the Oct. DSREIR concludes that Project emissions after implementing Mitigation Measure 4.3-8 and the OG-ERA “are still considered significant and unavoidable,”⁷² thus requiring further evaluation of public health impacts from increases in ambient concentrations of NO_x, PM_{2.5} and PM₁₀.

Mitigation Measure 4.3-8 and the OG-ERA will not mitigate ambient air quality impacts. Pollution-reducing projects implemented under the OG-ERA, unless located in the impacted area and occurring at the same time and place as the emissions to be mitigated, will not mitigate impacts to sensitive receptors downwind from the Project site. See discussion of offsets in Comment 3, below. Thus, the Oct. DSREIR has failed to disclose the potential for significant public health and biological impacts caused by significant increases in NO_x, VOC, PM_{2.5}, PM₁₀, and other emissions from the Project, as summarized in Tables 1 and 2, and thus has failed to propose adequate mitigation.

2.6. Significant Public Health Impacts from Criteria Pollutant Emissions

As noted *supra*, in *Sierra Club v. County of Fresno* the California Supreme Court affirmed CEQA’s mandate to protect public health and safety by holding that an EIR fails as an informational document under CEQA when it fails to correlate a project’s significant air quality impacts with potential human health impacts or explain why such further evaluation is infeasible.⁷³ An EIR must make a “reasonable effort to substantively connect a project’s air quality impacts to likely health consequences.”⁷⁴

The Oct. DSREIR made no attempt to estimate the Project’s air quality impacts, which would require ambient air quality modeling of the emissions in Tables 1 and 2. Thus, there is no basis in the Oct. DSREIR to connect the Project’s air quality impacts with likely health consequences because it failed to model the ambient air pollutant concentrations resulting from the Project’s construction and operational criteria pollutant emissions as summarized in Tables 1 and 2. Ambient concentrations at impacted locations are essential to determine public health and other impacts from criteria pollutant emissions.

⁷² Oct. DSREIR, p. 4.3-130.

⁷³ *Sierra Club v. County of Fresno* (2018) 6 Cal. 5th 502 (referred to as “the Friant Ranch Decision”).

⁷⁴ Cal. Pub. Res. Code § 21005, 21168.5; Cal. Code Regs. tit. 14, § 15151.

While the Oct. DSREIR concluded that construction and operational air quality impacts were significant, it failed to disclose the location of and nature of the resulting public health and other impacts from increases in these emissions. The Oct. DSREIR instead asserts that ambient air quality modeling “was not required to evaluate the potential significance of Project-related air emissions.”⁷⁵ This is incorrect. Without modeling the emissions, it is impossible to determine the impacted area (which may be distant from the source of the emissions) and the significance of the impact (e.g., cause or contribute to violations of ambient air quality standards). The Oct. DSREIR also failed to explain why modeling of air pollutant emissions is infeasible. In fact, modeling of emissions is feasible and routinely conducted in CEQA documents.

The Friant Ranch Decision concluded that CEQA requires that the potential for a project’s emissions to affect human health in an air basin must be disclosed when a project’s criteria air pollutant emissions exceed applicable significance thresholds, as here, or explain why such further evaluation is infeasible.⁷⁶ Tables 1 and 2 demonstrate that construction and operational emissions of NO_x, VOCs, CO, PM₁₀, and PM_{2.5} emissions exceed significance thresholds, requiring ambient air quality modeling to determine the location of the impact so effective mitigation can be identified. The Oct. DSREIR as written makes it impossible for the public to translate the emission numbers in Tables 1 and 2 into adverse health impacts or to understand why such translation is not possible.⁷⁷

The Oct. DSREIR, for example, failed to disclose the public health impacts from highly significant increases in construction and operational NO_x, VOC, and PM_{2.5} emissions. As explained in the Friant Ranch Decision, “The EIR must provide an adequate analysis to inform the public how its bare numbers translate to create potential adverse impacts or it must adequately explain what the agency does know and why, given existing scientific constraints, it cannot translate potential health impacts further.”⁷⁸ The public health impacts of these increases can easily be estimated using standard air modeling techniques.⁷⁹ Thus, the Oct. DSREIR fails as an informational document under CEQA.

⁷⁵ Oct. DSREIR, Air Quality, p. 4.3-122.

⁷⁶ Friant Ranch Decision, 6 Cal. 5th at 507-508, 518-522.

⁷⁷ Id. at 524.

⁷⁸ Id. at 524.

⁷⁹ See, for example, U.S. EPA, State Implementation Plan (SIP) Attainment Demonstration Guidance, 8-hour Ozone/PM_{2.5}/Regional Haze Modeling Guidance; <https://www.epa.gov/scram/state-implementation-plan-sip-attainment-demonstration-guidance#8ozone>.

The California Supreme Court also held in the Friant Ranch Decision that an EIR must make “a reasonable effort to discuss relevant specifics regarding the connection between two segments of information already contained in the EIR, the general health effects associated with a particular pollutant and the estimated amount of that pollutant the project will likely produce.”⁸⁰ Further, the EIR must show a “reasonable effort to put into a meaningful context the conclusion that the air quality impacts will be significant.”⁸¹

CEQA requires an EIR to adequately explain either (a) how “bare [emissions] numbers” translate to or create potential adverse health impacts; or (b) what the agency does know, and why, given existing scientific constraints, it cannot translate potential health impacts further. The Oct. DSREIR contains no responsive discussion or analysis, noting only that ozone and PM_{2.5} can have significant health impacts, without estimating the public health impacts of the Project’s VOC, PM_{2.5}, and other criteria pollutant emissions on nearby sensitive receptors, disclosing where the impacts would occur, disclosing whether they are significant, or explaining why such an analysis is unwarranted or infeasible.⁸²

Like the Friant Ranch EIR, the Oct. DSREIR quantifies how many tons per year the Project will generate of VOCs but does not quantify the ambient concentrations of *ozone* that these VOC emissions will create. Similarly, the Oct. DSREIR quantifies how many tons per year of NO_x, SO_x, CO, and PM_{2.5} would be generated by the Project but does not estimate the increase in ambient concentrations of these pollutants that sensitive receptors would breathe.

Emissions expressed in ton/yr or lb/day must be converted into ambient concentrations in micrograms per cubic meter (µg/m³) and compared to ambient air quality standards to estimate potential health effects to exposed parties. Neither Mitigation Measure 4.3-8 nor the OG-ERA require that reductions in ambient concentrations from OG-ERA emission reductions affect the same location(s) and sensitive receptors as the Project emissions that they offset. Thus, they provide no assurance that significant public health impacts will be mitigated.

The concentration in µg/m³ is required to evaluate the public health impacts of VOCs, PM_{2.5}, PM₁₀, and other pollutants. Although the Oct. DSREIR explains that ozone can cause health impacts, this information is meaningless because the Oct. DSREIR does not estimate ambient concentrations of ozone, PM_{2.5}, or any other

⁸⁰ Friant Ranch Decision, 6 Cal. 5th at 524.

⁸¹ Id. at 522.

⁸² Oct. DSREIR, pp. 4.3-11/12 and 4.3-15/16.

pollutant that the Project will emit. Further, the Oct. DSREIR does not disclose the increment in the levels of exposure to ozone, PM_{2.5}, and other pollutants that would trigger adverse health impacts. As the entire San Joaquin Air Basin currently violates both the state and federal PM_{2.5} and ozone ambient air quality standards, any increase in ambient concentrations of ozone, PM_{2.5}, and other pollutants is a per se significant public health impact as the ozone, PM_{2.5}, and other ambient air quality standards were established to protect public health.

In short, the Oct. DSREIR makes it impossible for the public to translate the emission numbers in lb/day and ton/yr into health impacts at their locations because ambient concentrations corresponding to the emissions summarized in Tables 1 and 2 are not disclosed. The Oct. DSREIR calculates emissions of VOC, PM_{2.5}, PM₁₀, and other pollutants (Tables 1 and 2) but fails to translate these emissions into ambient concentrations that sensitive receptors would breathe. Thus, it fails as an informational document under CEQA.

In addition, Table 1 shows that CO emissions exceed the construction significance threshold by a factor of 92. Table 2 shows that operational Project emissions exceed the significance thresholds for CO by a factor of 23 and SO₂ by a factor of 7, which also can have significant public health impacts. These pollutants were not directly discussed in this comment because air quality in the San Joaquin Valley Air Basin currently meets federal and state ambient air quality standards for them. However, this does not excuse the County from converting the emissions of CO and SO₂, summarized in Tables 1 and 2, into ambient concentrations and comparing the results with ambient air quality standards, as summarized in the Oct. DSREIR, Table 4.3-1. or with significant impact levels (SILs) for SO₂.⁸³ If these analyses demonstrate that the Project's emissions would result in ambient concentrations of CO and SO₂ that exceed ambient air quality standards and/or SILs, which apply in attainments areas, the FEIR must include mitigation to reduce the impact(s) to less than significant levels.

3. OFFSETS WILL NOT MITIGATE AIR QUALITY IMPACTS IN KERN COUNTY

The Oct. DSREIR concludes that Project emissions would exceed the SJVAPCD operational emissions significance threshold and thus "would represent a potentially significant impact."⁸⁴ However, according to the Oct. DSREIR, "all emissions increases from permitted equipment plus the 10% allowance from non-permitted equipment

⁸³ EPA, New Source Review (NSR) Permitting, Significant Impact Levels (SILs) & Cumulative Analyses; <https://www.epa.gov/nsr/significant-impact-levels-sils-cumulative-analyses>.

⁸⁴ Oct. DSREIR, p. 4.3-111.

would be required to be fully offset pursuant to District Rule 2201.... Therefore, there would be no net increase in these emissions.”⁸⁵

The Oct. DSREIR cannot rely on offsets to mitigate air quality impacts from permitted equipment under CEQA because offsets are not valid CEQA mitigation unless they reduce the emissions at the time and location where the impact occurs. The files that I reviewed do not disclose the location where the impacts occur or identify the offsets that will be relied on. Thus, the Oct. DSREIR fails as an informational document under CEQA.

First, historically banked ERCs are part of the CEQA baseline. The emission reductions are already accounted for in the ambient air quality at the Project site at the time of project proposal. Increases in emissions from the Project will increase emissions relative to the existing baseline. Purchasing ERCs would not reduce, offset, or mitigate increases in Project emissions, as the reductions occurred historically, before the Project was conceived and are part of the baseline. Thus, the portion of the increase in emissions in Table 2 that would be offset under Rule 2201 must be mitigated through Mitigation Measure 4.3-8 and the OG-ERA, amended as discussed in Comment 2.5.

Second, historically banked ERCs are legally distinct from emission reductions required under CEQA to mitigate new increases in emissions. Thus, the ERC concept is not consistent with the CEQA mandate to mitigate actual impacts on local receptors. The emissions of VOCs, for example, will increase in the area where the new Project emissions are released. Historically banked ERCs will not mitigate future emissions. The impact of the Project’s increased emissions on local sensitive receptors must be evaluated under CEQA and mitigated at the time and place that it occurs.

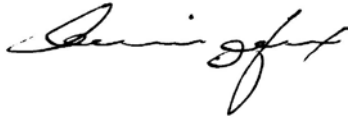
On a commonsense level, it is not logical to assume that ERCs, which frequently have been banked decades ago, will do anything to mitigate impacts from local emission increases, especially in a region plagued with serious and ongoing air quality violations. Instead, this approach aggravates the exposure of residents to extraordinarily unhealthy ozone, PM_{2.5}, and PM₁₀ concentrations in the local ambient air, which was not adequately evaluated in the Oct. DSREIR.

Therefore, the use of ERCs as well as the proposed OG-ERA are not valid mitigation under CEQA. They are not acceptable substitutes for performing local air quality analyses and mitigating the local air quality impacts where they occur, as discussed in Comment 3. A revised CEQA document should clearly state that the use of offsets to mitigate air quality impacts, except those offsets that occur at Project sites at the time of site startup, are not valid mitigation. Instead, conventional mitigation, such

⁸⁵ Oct. DSREIR, p. 4.3-111.

as pollution controls on emitting equipment, the use of only Tier 4 construction equipment, and properly located OG-ERA projects under MM 4.3-8 are required to reduce the significant NO_x, VOC, PM_{2.5}, PM₁₀ and other emissions to the maximum extent feasible.

Sincerely,

A handwritten signature in black ink, appearing to read "Phyllis Fox", written in a cursive style.

Phyllis Fox, Ph.D., PE

ADDENDUM C

To: Colin O'Brien (Earthjustice), Ann Alexander (NRDC)
From: Tanja Srebotnjak, PhD
Date: December 10, 2020
Re: Assessment of Kern County response to scientific and peer-reviewed literature submitted by Earthjustice and co-counsel in relation to the Kern County, CA proposed project called "Revisions to Title 19—Kern County Zoning Ordinance (2020-A)"

Background

Earthjustice and its co-counsel, i.e., the Center for Biological Diversity, Center on Race, Poverty & the Environment, the Natural Resources Defense Council, and Sierra Club (collectively, "Earthjustice") submitted comments (September 16, 2020) to Kern County in response to its proposed revision of Title 19—Kern County Zoning Ordinance (2020-A) and the accompanying August Draft Supplemental Recirculated Environmental Impact Report (August DSREIR).

The comments included a list and discussion of scientific and peer-reviewed literature documenting the human health risks associated with conventional and unconventional oil and gas production. Earthjustice also submitted copies of the literature cited. Kern County in its response to this list, in its October Draft Supplemental Recirculated Environmental Impact Report (October DSREIR), offered a short summary of each submitted study and identified one or more points of critique of the study design, its implementation (e.g., regarding sample size), and/or its conclusions.

My work has focused on reviewing the responses by Kern County in the October DSREIR to the literature submitted and evaluating them in the context of statistical, epidemiological and public health practice regarding risk assessment and risk association studies. This memo summarizes my findings.

Material Reviewed

I reviewed the following material for my comments:

- Comments submitted on September 16, 2020 by Earthjustice on the August Draft Supplemental Recirculated Environmental Impact Report for Revisions to Title 19-Kern County Zoning Ordinance (2020-A) Focused on Oil and Gas Local Permitting (SCH # 2013081079) (September 16 Letter).
- Portions of the Kern County October Draft Supplemental Recirculated Environmental Impact Report (October DSREIR), available at <https://kernplanning.com/environmental-doc/oil-and-gas-sreir/>

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- Section 4.3 – Air Quality, Oil and Gas Operations Health Effects
- Section 6.7.7 – Alternative 7, 2,500-Foot Setback Alternative
- Appendix B – on multi-well and single-well health risk assessments.
- Report on Final Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C) (Focused on Oil and Gas Local Permitting) prepared by Dr. Phyllis Fox for Shute, Mihaly & Weinberger LLP, dated November 6, 2015.
- Comments Regarding ECS’s Cumulative Health Risk Assessment (HRA) for the Kern County Final EIR – Proposed Drilling and Oil and Gas Operations prepared by Dr. Andrew Gray, Gray Sky Solutions, dated September 15, 2020.
- Letter from Dr. David H. Garabrant to Jeffrey Dintzer, dated September 12, 2020 (Garabrant Letter).

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Analysis of Literature Summaries and Critiques by Kern County

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The October DSREIR includes references to and single-paragraph summaries and critiques of 47 scientific, peer-reviewed, and technical studies and commentary that address research into different health risks and outcomes in the context of conventional and unconventional oil and gas development and production. Most or all of these studies—investigating general health effects, asthma and respiratory effects, adverse birth outcomes, cardiovascular impacts, endocrine disrupting chemicals, and mental health effects—were provided by Earthjustice in their September 16 Letter.

The County criticizes almost every study listed and the main points of critique are:

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1. Association is not causation;
2. Lack of direct exposure measurement and reliance on exposure assessment based on number of wells and/or production volumes of wells located within a specified radius of the residences of the studied population; where exposure data is used, the biological pathways from exposure to adverse health outcome are not always clear;
3. Insufficient controlling for other factors that might influence health outcomes, including but not limited to mothers’ occupation, births to same mother, mothers moving residences between conception, delivery or exposure, housing quality, indoor air quality, dependence on groundwater for drinking water, other sources of air pollution in the area, hydrogeological and meteorological conditions in the area;
4. Small sample sizes;
5. Non-representative population sample;
6. Use of self-reported health symptoms and status as opposed to confirmed medical records and laboratory analyses;
7. Lack of applicability of studies conducted outside of California, addressing natural gas production, or involving different geologies, engineering practices, and regulatory regimes to the Kern County context; and
8. Use of data based on average wells and lack of consideration of the engineering specifics of individual wells and nearby structures.

These critiques were typically plucked from the portion of the studies' discussion addressing constraints and limitations. They do not represent the County's own analysis or an in-depth review of the studies' experimental designs, data collection and analysis approaches, or their findings.

The papers cited in the September 16 Letter and referenced in the October DSREIR found positive associations, correlations, and linkages between the studied health outcomes and variables associated with oil and gas development or found elevated levels of potential exposure to chemicals, hazardous air pollutants, and other known toxic contaminants used or released during upstream oil and gas operations. This is in line with the general literature on oil and gas development. Keyword searches on Google Scholar, PubMed, and WebOfKnowledge yield hundreds of public health relevant peer-reviewed articles on U.S. oil and gas development with the majority identifying elevated health hazards and risks for people and communities in the proximity of oil and gas development sites and also characterizing exposure risks for oil and gas workers.

Notable about the County's summaries and critiques of the cited literature is a cherry-picking approach that focused on highlighting study limitations and, on several occasions, mentioning inconclusive or negative findings that were marginal to the study's stated purpose. It should be emphasized that it is standard practice for scientific studies to identify and discuss the scope, limitations, and caveats of their investigation. As Puhon et al. (2012) write "[u]nbiased and frank discussion of study limitations by authors represents a crucial part of the scientific discourse and progress." Indeed, studies that do so extensively and transparently represent best practices in scientific publishing, since "[i]n today's culture of publishing many authors or scientific teams probably balance 'utter honesty' when discussing limitations of their research with the risk of being unable to publish their work. Currently, too few papers in the medical literature frankly discuss how limitations could have affected the study findings and interpretations." (Puhon et al., 2012)

In regard to the above-noted limitations that the County cites regarding the reviewed literature, they generally have little to no merit as critiques of the studies' findings, for the reasons explained below.

1. Association is not causation

The County, citing the Garabrant Letter, states that the studies by Tran et al. (2020) and Gonzalez et al. (2020) do not prove causation and lack direct exposure measures in their investigations of adverse birth outcomes in proximity to California oil and gas sites. The same argument can be extended to most other studies in the literature review provided by Earthjustice, raising the question of the validity of association studies in determining the health risks and hazards for people and communities living in the proximity of oil and gas development.

First, it should be noted that proving cause-effect relationships is very challenging in any field, discipline, and context. Freedman (2005) examines several conditions that need to be met in order to infer causality from a statistical model, including strong statistical assumptions and knowledge of the underlying data generating mechanism. Therefore, many studies are associative in scope and purpose, while nonetheless providing useful insights into the strength, functional form, and other characteristics of the relationships between variables of interest.

Indeed, observational association studies are a widely used approach in epidemiology and contribute meaningfully to public health decision-making. The County's implication that the cited studies should be ignored or downweighed because they use statistical analysis to determine the association between one or more health outcome variables of interest on the one hand and one or more explanatory variables on the other is thus misguided and does not hold up to scrutiny in light of decades of established epidemiological practice.

To name just one example, the Institute of Medicine Committee on Gulf War and Health continues a 2-decade-long series of studies examining the health effects of soldiers who served in the Gulf War. A total of 11 volumes have been published since 2000 and many insights are based on associations between soldiers' observed health outcomes and their documented and likely exposures to harmful chemicals and compounds such as hydrocarbon fuels and their combustion products, sarin, depleted uranium, insecticides, and solvents during the war. Volume 3 (NRC, 2014) deals specifically with the "long-term, human health effects associated with exposure to selected environmental agents, pollutants, and synthetic chemical compounds believed to have been present during the Gulf War." In particular, the Committee examined the associations between health outcomes and exposure to hydrocarbon fuels and combustion byproducts, including hydrogen sulfide, hydrazine and red fuming nitric acid. Regarding the use of association-based studies, a 2009 Update states that "[i]n epidemiological research, analytical studies are designed to permit the examination of the association between two or more variables. ... Association is primarily a statistical concept referring to the quantification of the relationship (positive, negative, or none) between two variables (e.g., independent and dependent)."

Studies aiming to show causality are often only implementable in controlled experimental/laboratory settings. However, well-designed observational studies using statistically measurable associations between the outcome variable(s) of interest and the potential explanatory variable(s)—including proxy variables—can generate valid and meaningful insights. Thus, the cited studies should not be considered flawed at the outset, but their validity evaluated within the context of their scope and purpose: What was the authors' intent to assess and was the chosen study design suitable to accomplish this goal.

It is also noted that association studies are also widely used in other disciplines and are a key study method in genetics, where observational Genome-wide Association Studies (GWAS) have become the de-facto approach for linking gene-expression data with phenotype information.

2. Lack of direct exposure measurement and reliance on exposure assessment based on number of wells and/or production volumes of wells located within a specified radius of the residences of the studied population; where exposure data is used, the biological pathways from exposure to adverse health outcome are not always clear

The County criticizes the lack of direct exposure measurements in several of the reviewed studies. While it can be beneficial in principle to measure actual exposures to health-relevant agents and to establish exposure-effect relationships, failure to do so is not problematic if such analysis is not within the study's scope and purpose.

Exposure measurement in oil and gas operations is known to be challenging, in part because producers may not be required to conduct measurement/monitoring of relevant air contaminants on site or at fence lines, individual spot sampling is hampered by the high variability of emission episodes, regional air quality monitors are not designed to capture such episodes and/or do not monitor the specific air contaminants, and monitoring equipment and subsequent laboratory analysis is costly to acquire and conduct. Direct exposure studies for large and/or retrospective studies is also generally impractical and impossible, a problem further exacerbated if exposure to agents through multiple pathways (e.g., air, water, soil) or to multiple agents is needed.

For these and other reasons, researchers design studies to use proxy variables that have been shown to correlate with the exposure measure(s) of interest. These proxies include measures of distance-weighted well density (sometimes coupled with information of oil and gas production volumes for each well) in the vicinity of known receptors. Studies such as the one by Gonzalez et al. (2020) have also validated their proxy by confirming that increased oil and gas activity as measured by well numbers and/or production volumes is associated with increased concentrations of specific air pollutants.

3. Insufficient controlling for other factors that might influence health outcomes, including but not limited to mothers' occupation, births to same mother, mothers moving residences between conception, delivery or exposure, housing quality, indoor air quality, dependence on groundwater for drinking water, other sources of air pollution in the area, hydrogeological and meteorological conditions in the area

The County's criticism refers to the challenge in any observational epidemiological study to appropriately control for confounding variables. A confounder is a variable that influences the outcome variable(s) of interest while also being related to one or more explanatory variables, thus rendering the association between them spurious. Additional sources of spurious associations are random error, systematic error (bias), and reverse causality. As the Institute of Medicine in its Gulf War report states, "[r]andom error and systematic error can also be responsible for not observing an association when one truly does exist. It is essential to consider these alternative explanations in judging the findings of an epidemiological study."

Many studies use sensitivity analyses to test the dependence of their results on the assumptions and analysis decisions made in the study, a safeguard that was also applied to studies in the literature provided to the County (e.g., Gonzalez et al. 2020). Part of the scientific peer-review process is for other researchers to examine the extent to which the authors have ensured that confounding and other sources of spurious associations or flawed causality are minimized. While the County might raise objections to the choice of control variables in the authors' methods and models, the domain-specific expert peer-review provides a substantial level of insurance against the omission of critical control variables.

In other cases, the authors have discussed why they were not able to include a specific control variable in the study's limitations section. In his letter, Dr. Garabrant states "neither study [Tran et al. (2020) or Gonzalez et al. (2020)] assessed confounding due to smoking, drug use, alcohol, infections during pregnancy, pharmaceuticals, malnutrition, poverty, lack of access to health care, maternal disease, pregnancy complications, or genetics." However, this is not true as the authors use and discuss several potential confounding variables, including smoking, prenatal care, socio-economic status and nearby traffic-related air pollutants. None of these factors was found to alter significantly the effect of the oil and gas metric used in their models.

4. Small sample sizes

Small sample sizes can arise by design and by necessity. Circumstances, cost, time, and other factors influence the sample size in observational studies. In psychology, neuroscience, and astronomy, small samples are the norm rather than the exception and research findings are still meaningful and accepted.

The main impact of small sample sizes is lower statistical power to find statistical evidence in support for the hypothesis of interest (see Figure below). There is also a risk that the sample might be unusual by chance and give rise to a false-positive finding.

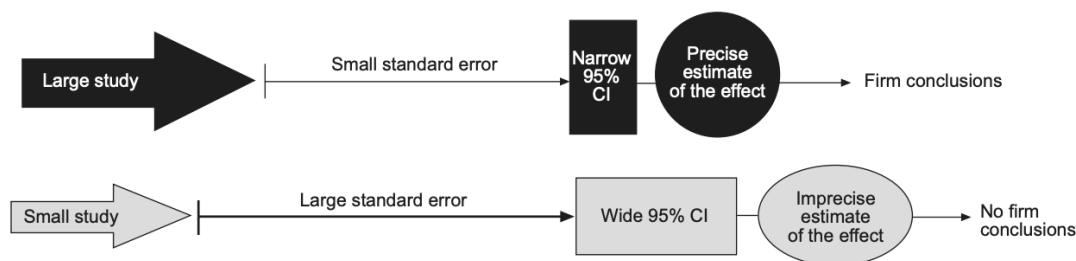


FIGURE 1. Schematic diagram showing how study size can influence conclusions. CI: confidence interval.

Source: Hackshaw (2008)

However, if the study finds statistical evidence for a health effect despite a small sample size, care has been taken in searching for alternative explanations for the positive finding and the study is designed to minimize systematic bias and confounders, the conclusions drawn for the

population included in the sample are likely valid (albeit they might not be generalized to a broader population, see 5.).

It is also noted that the collective evidence from the current ‘universe of studies’, which includes large cohort studies, on the human health risks associated with oil and gas development is in substantial agreement that risks exist, that they can be substantial, and that they increase with higher levels of exposure.

5. Non-representative population sample

Some of the reviewed literature used ‘convenience samples’ or collections of observational units that are deemed not representative. Representativeness of the study population or exposure metric is a criterion used to ensure that the observational units of a study reflect the relevant characteristics of the population and/or conditions about which researchers wish to draw inference.

The key approach to ensuring representativeness is randomization. However, not all data collection contexts, including in observational studies, permit randomized sampling. This does not mean, however, that the study should be discarded. It only means that—absent the successful application of validity screenings and bias adjustment (Deeks et al., 2003)—the study results can only be applied to the studied population or conditions. Such limitation also applies to both directions of the evidence found, i.e., the presence or lack of evidence for a statistically significant association between the outcome of interest and the explanatory variable(s) does not imply it does or doesn’t exist in reality. It just means that the data collected and analyzed represented a not-fully representative part of the full picture.

6. Use of self-reported health symptoms and status as opposed to confirmed medical records and laboratory analyses

The County criticized the use of health symptom questionnaires to collect data. Bias due to self-reported health symptoms and status falls under information bias, and is also referred to as misclassification (Althubaiti, 2016). While such potential bias bears note, questionnaires are also one of the most common sources of bias and one that has been the subject of considerable research. Althubaiti also notes that “[s]elf-reporting is a common approach for gathering data in epidemiologic and medical research. ... Nevertheless, when self-reporting data are correctly utilized, they can help to provide a wider range of responses than many other data collection instruments. For example, self-reporting data can be valuable in obtaining subjects’ perspectives, views, and opinions.”

Thus, the studies criticized by the County for using self-reported health data are not marginal studies in the field of epidemiology, but similar in their methods to many others and moreover, methods exist to reduce this bias through (i) careful instrument design (e.g., questionnaire, survey, app), (ii) instrument validation, pilot testing, and interviewer training (if applicable), and

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(iii) adjustment of data obtained through the instrument. Critiquing the studies outright for using self-reported health data negates the possibilities that researchers can use to address potential sources of bias. Furthermore, the studies in the reviewed literature that used self-reported health information report findings that are in line with those that used clinical diagnoses (cf. Arbelaez, J. and B. Baizel. (2015), Shamasunder, B. et al. (2018), Weinberger, B. et al. (2017), Peng, L. et al. (2018), Willis M.D. et al. (2018), and Rasmussen, S.G. et al. (2016)).

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7. Lack of applicability of studies conducted outside of California, addressing natural gas production, or involving different geologies, engineering practices, and regulatory regimes to the Kern County context

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The County appears to dismiss or downweigh any study that does not specifically target oil and gas production in California arguing that different geologies, engineering practices, and regulatory environments render comparisons moot. As the rich body of literature on health risks associated with oil and gas development (conventional and unconventional) indicates, health risks exist in all locations with oil and gas activities (as identified in Garcia-Gonzalez et al., 2019). While local contexts and practices indeed vary, several review studies have shown that these contexts also have many commonalities regarding emissions of air contaminants, risks to ground and surface water, noise, light pollution, and other potential health risks as they share similarities during exploration, well pad preparation, drilling, well completion, production, and well shut-in.

8. Use of data based on average wells and lack of consideration of the engineering specifics of individual wells and nearby structures

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The County criticized the use of “average gas wells” in thermal modeling by Haley M. et al. (2016) to assess the adequacy of current setback distances in three major shale plays, the Marcellus, Barnett and Niobrara. Emissions of air pollutants vary across time, space, and across wells. Depending on the purpose and scope of the study, such variation may need to be taken into account. For example, if the goal is to identify the major emission sources of specific air contaminants at a specific site or small number of sites in close proximity to receptors, individual sensors may need to be installed at various types of equipment. However, if the purpose is to characterize the airfield of a larger area such as an oil field or nationally, average statistics on emission rates for different source categories will generally be sufficient. Examples of such practices include bottom-up emission inventories for methane and other VOCs. The County’s assertion that using central measures of tendency to assess emissions from a group of similar emission sources results in misleading findings is misguided and contradicts existing practice (see, for example, EPA’s Natural Gas STAR Program to determine methane emission inventories).

On the Role of Field Studies

Field studies play a critical role in epidemiology. As the CDC's Field Epidemiology Manual states that "[a] primary goal of field epidemiology is to guide, as quickly as possible, the processes of selecting and implementing interventions to lessen or prevent illness or death when such problems arise." (CDC, 2020) While the Manual's focus is on acute or emerging public health threats, it recognizes that the value in such studies lies in "[h]ealth departments becom[ing] aware of possible disease outbreaks or other acute public health problems in different ways. Situations might gain attention because astute clinicians recognize unusual patterns of disease among their patients and alert health departments, surveillance systems for monitoring disease or hazard trends detect increases, the diagnosis of a single case of a rare disease heralds a broader problem or potential threat, or members of the public are concerned and contact authorities."

The nature of field studies is often observational, i.e., collecting data on ongoing environmental, industrial, and other processes and the incidence and prevalence of health outcomes of concern to the public and/or public health officials. As first collectors of data, the resulting association studies inform and guide public health responses and the design of confirmatory experimental studies, investigations into the biological pathways of exposure to the suspected agent(s), and manifestation of the adverse health outcome(s). Field studies thus carry direct, immediate, and persistent value in forming understanding into the causes of morbidity and mortality and resulting public health and other interventions.

Field studies also provide valuable "ground truth" data to modeling exercises. Such data is used to calibrate and validate models. It is, for example, standard practice in oil and gas reservoir studies to integrate field observations (e.g., stress/strain data, core and well-logging data, and previous production history) with regional satellite images, seismic data, and advanced reservoir models.

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ADDENDUM A

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December 14, 2020

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Re: Review of October 2020 Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020(A), Focused on Oil and Gas Local Permitting, SCH# 2013081079

Dear Mr. O'Brien,

Per your request, I reviewed the Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020(A) on Oil and Gas Local Permitting ("Project") published by the Kern County Planning and Natural Resources Department ("County") in October 2020 (hereafter "October Draft SREIR").¹ The October Draft SREIR is a revised and amended version of the Draft SREIR published by the County in August 2020 (hereafter "August Draft SREIR").

I previously commented on deficiencies of the sections on air quality (Section 4.3) and greenhouse gas emissions (Section 4.7) for the Project in the Final Environmental Impact Report published by the County in 2015 ("2015 Final EIR")² and in the August Draft SREIR.³ My comments below expand on these deficiencies and address additional issues including the failure to identify and mitigate significant criteria pollutant emissions from construction and operation of stationary sources subject to permitting

¹ Kern County Planning and Community Development Department, Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C), Focused on Oil and Gas Local Permitting, October 2020, SCH# 2013081079; available at: <https://kernplanning.com/environmental-doc/oil-and-gas-sreir/>.

² Petra Pless, Letter to Will Rostov, Earthjustice, Re: Review of Final Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C), Focused on Oil and Gas Local Permitting, SCH# 2013081079, November 11, 2015. (See October Draft SREIR, Vol. 8, AR 159172-159200, reproduced without 34 exhibits.)

³ Petra Pless, Letter to Colin O'Brien, Earthjustice, Re: Review of Draft Supplemental Recirculated Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2020(A), Focused on Oil and Gas Local Permitting, SCH# 2013081079, September 16, 2020. (See October Draft SREIR, Vol. 2, Appx. G.)

by the San Joaquin Valley Air Pollution Control District (“SJVAPCD”). Issues discussed in my comments on the August Draft SREIR not specifically addressed in these comments are herewith incorporated by reference. In addition, these comments provide errata to my comments on the August Draft SREIR, Attachment C, which was inadvertently provided as a draft version without proper figure and table references (no changes to the content were made).

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I. The October Draft SREIR's Air Quality Section Is Not Adequately Supported, Inaccessible, and Incomplete

I previously commented on the lack of adequate support for the emission estimates and conclusions presented in the air quality sections in the 2015 Final EIR and the August Draft SREIR. The October Draft SREIR did nothing to address these deficiencies. Thus, Section I of my comments on the August Draft SREIR remains applicable to the October Draft SREIR and is herewith incorporated by reference.

The October Draft SREIR also keeps intact the same highly repetitive and poorly organized structure as the August Draft SREIR. For example, the entire discussion in Section 4.3.4 Impacts and Mitigation Measures (covering Air Quality Impacts 4.3-1 through 4.3-4), which spans 78 pages, does not provide numbering for the various subheadings nor does it provide adequate visual cues with distinct formatting to indicate where in the overall scheme a respective discussion fits (*e.g.*, for construction and operational emissions, permitted and permit-exempt equipment, criteria pollutant modeling, etc.), making navigation between the various subsections, impacts, and mitigation measures unnecessarily difficult. What's more, the document repeats information, some verbatim, throughout the document.⁴ Review of the document is further hampered by imprecise and ill-defined terms, incorrect or imprecise table

⁴ See, for example, October Draft SREIR, Vol. 1, Section 4.3 Air Quality, pp. 4.3-72 and 4.3-73 ("... CARB recently performed an audit of the SJVAPCD ERC Banking Program, CARB did not overturn the program (CARB 2020b, 2020c). Subsequently, the SJVAPCD Board approved staff recommendations to remove Ag-ICE projects from the NOx ERC equivalency system and to remove orphan shutdown projects from the VOC ERC equivalency system, effective September 17, 2020 (SJVAPCD 2020). This action means that the SJVAPCD cannot demonstrate federal equivalency with the surplus value test for NOx and VOC and thus any new major source or federal major modification triggering NOx or VOC offsets under Rule 2201 will require "surplus at time of use" ERCs, which means ERCs must be demonstrated to be surplus at the time an ATC is issued, rather than at the time that the emission reductions began. This process will remain in place until such time that equivalency with the federal program is again demonstrated by the SJVAPCD. This step by the SJVAPCD thus restricts the allowable number of ERCs that are valid for use as offsets in the Valley, but does not change the way that ERCs are used nor does it change permitting requirements under Rule 2201. Thus, permitted stationary sources will only be allowed to move forward and be permitted by the SJVPACD if emissions are properly offset and if the SJVPACD approves an ATC, as required by Rule 2201."), repeated verbatim at p. 4.3-88 and p. 4.3-110.

headings,⁵ repetitive tables with the same information,⁶ incorrect information,⁷ and the document's failure to provide updated weblinks to cited references.⁸

One prime example of imprecise or ill-defined use of terms is the use of the word "non-permitted" for emissions sources: the October Draft SREIR uses this term to distinguish between stationary sources requiring permits from the SJVAPCD and sources and activities not requiring such permits, including small equipment, well-related maintenance and treating operations, routine business travels, trucks, automobile work trips, and onsite vehicles.⁹ Yet, the October Draft SREIR also refers to "non-permitted equipment" when it actually means "stationary equipment operated by non-Title V operators," *i.e.*, stationary equipment permitted by the SJVAPCD for small oil and gas operators whose combined emissions from stationary sources do not reach major source status requiring a Title V permit.¹⁰ Elsewhere, October Draft SREIR refers to these non-Title V operators as "Small O&G Sources."¹¹ This inconsistent use of the term "non-permitted" is confusing to even an experienced reviewer.

The October Draft SREIR introduces even more confusion and repetition by providing "clarified" versions of three mitigation measures (MM 4.3-2, MM 4.3-6, and MM 4.3-8) followed by the verbatim versions of these mitigation measures elsewhere in the text

⁵ For example, October Draft SREIR, Vol. 1, Section 4.3 Air Quality, Tables 4.3-30 and 4.3-31 have the exact same caption ("Total Estimated Incremental Emissions from the Project Non-Permitted Equipment and Activities per New Well in Tons per Year"). This heading is incorrect for Table 4.3-31, which summarizes estimated annual emissions for 3,647 new wells in any year in tons per year.

⁶ Compare October Draft SREIR, Vol. 1, Section 4.3 Air Quality, Table 4.3-8 (San Joaquin Valley Air Pollution Control District Criteria Pollutant Emissions, Significance Thresholds (tons per year)), p. 4.3-72, and Table 4.3-10 (San Joaquin Valley Air Pollution Control District Criteria Pollutant Emissions Significance Thresholds (tons per year)), p. 4.3-94; and tables summarizing thresholds of significance, pp. 4.3-81 and 4.3-94.

⁷ For example, October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-138 claims: "As shown in Table 4.3-DD, NOx reductions attributable to emission reduction projects funded by ERA mitigation fees have increased from 181 tons in 2016 to **1,068 tons in 2020.**" This is incorrect, Table 4.3-DD shows that NOx reductions attributable to emission reduction projects funded by ERA mitigation fees have increased from 181 tons in 2016 to **959 tons in 2020.**

⁸ For example, *see* October Draft SREIR, Vol. 1, Section 10 Bibliography: the weblink for Kern County Planning Department's 2006 Guidelines for Preparing an Air Quality, Assessment for Use in Environmental Impact Reports, was last accessed on April 20, 2015 and the document is no longer available for download at <http://www.co.kern.ca.us/planning/pdfs/AirQualityAssessmentpreparationGuidelines.pdf>.

⁹ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-82.

¹⁰ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-111 ("However, all emissions increases from permitted equipment plus the 10% allowance from non-permitted equipment would be required to be fully offset pursuant to District Rule 2201.") and p. 4.446 ("Facilities were assumed to be inspected every other workday. The number of facilities was increased by 10% to account for non-permitted sources.").

¹¹ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, Table 4.3-20.

but without underline/strikethrough.¹² The result is a bloated document – the air quality section alone, without appendices, is 168 pages long – that fails to effectively convey pertinent information about the impacts of the Project to the public.

Finally, the State and County CEQA Guidelines require that a CEQA document analyze whether a project would:

- a) Conflict with or obstruct implementation of the applicable air quality plan?
- b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
- c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?
- d) Expose sensitive receptors to substantial pollutant concentrations?
- e) Create objectionable odors affecting a substantial number of people?

Here, the October Draft SREIR provides significance thresholds to support findings under question b) *i.e.*, for assessing whether the Project would violate or contribute substantially to an existing violation of ambient air quality standards,¹³ but declines to provide ambient air quality modeling for criteria pollutants:¹⁴

Ambient air quality modeling results for NO₂, SO₂, and CO, PM₁₀, and PM_{2.5} are sometimes warranted for large stationary sources near potentially sensitive receptors. Since the Project consists of Zoning Code Amendments that will regulate a broad range of oil and gas activities located throughout the Project Area, and excludes the types of large stationary sources (e.g., new and expanded cogeneration plants) that could warrant ambient air quality modelling, this modelling was not required to evaluate the potential significance of Project-related air emissions.

The October Draft SREIR makes no finding as to whether the Project's emissions would result in violations or contribute to existing violations of ambient air quality standards (typically supported by ambient air quality modeling) and simply skips answering question b).¹⁵

¹² See October Draft SREIR, Vol. 1, Section 4.3 Air Quality: **MM4.3-2** clarified at pp. 4.3-89 and 4.3-89 and repeated without underline/strikethrough at pp. 4.3-91 and 4.3-92; **MM 4.3-6** clarified at pp. 4.3-157 and 4.3-158 and repeated without underline/strikethrough at pp. 4.3-159 and 160; **MM 4.3-8** clarified at pp. 4.3-142 and 4.3-143 and repeated without underline/strikethrough at pp. 4.3-164 and 4.3-165.

¹³ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, Table 4.3-9.

¹⁴ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-22.

¹⁵ See October Draft SREIR, Vol. 1, Section 1 Executive Summary, pp. 143 through 1-147.

II. The October Draft SREIR Fails to Identify and Mitigate Significant Criteria Pollutant Emissions from Construction and Operation of Stationary Sources Subject to Permitting by the San Joaquin Valley Air Pollution Control District

Future oil and gas exploration and production activities that would be authorized under the Project would include construction and operation of stationary equipment (emission units) subject to permitting by the San Joaquin Valley Air Pollution Control District (“SJVAPCD” or “District”) such as boilers, cogeneration plants, process heaters, reciprocating internal combustion engines, steam generators, production tanks, thermally enhanced oil recovery wells, volatile organic compound destruction devices (“VOCDDs”) such as flares, storage tanks, loading and unloading racks, and fugitive emissions.¹⁶ Specific projects under the SJVAPCD’s permitting authority may involve construction and operation of one or more such emission units and may involve permitting of a new stationary source or modification of an existing stationary source.¹⁷

As discussed below, the October Draft EIR claims that significant emissions from construction and operation of such stationary equipment, or emission units, would be fully offset and result in a net zero increase of emissions because these emissions units would be subject to the offset requirements of District Rule 2201. These claims are incorrect because District Rule 2201 simply does not guarantee a “no net increase” in emissions from construction or operation of the above discussed permitted sources. In fact, as discussed in Comment II.A, the rule does not apply to construction emissions. Further, as discussed in Comment II.B, the rule authorizes certain operational emissions increases without offsets and also exempts emissions from certain permitted stationary equipment from the offset requirements. As a result, the October Draft EIR fails to require any mitigation to reduce significant emissions during construction and operation of stationary permitted equipment to below applicable threshold of significance. These emissions remain significant and unmitigated.

Further, because the October Draft EIR falsely concludes that emissions associated with construction and operation of stationary equipment would be offset in their entirety, it

¹⁶ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, pp. 4.3-85 and 4.3-88.

¹⁷ District Rule 2201 defines a stationary source as: any building, structure, facility, or installation which emits or may emit any affected pollutant directly or as a fugitive emission. Building, structure, facility or installation includes all pollutant emitting activities including emissions units which: are under the same or common ownership or operation, or which are owned or operated by entities which are under common control; and belong to the same industrial grouping either by virtue of falling within the same two-digit standard industrial classification code or by virtue of being part of a common industrial process, manufacturing process, or connected process involving a common raw material; and are located on one or more contiguous or adjacent properties; or are located on one or more properties wholly within either the Western Kern County Oil Fields or the Central Kern County Oil Fields or Fresno County Oil Fields and are used for the production of light oil, heavy oil or gas. Notwithstanding the provisions of this definition, light oil production, heavy oil production, and gas production shall constitute separate Stationary Sources.

fails to incorporate these emissions into the emission estimates supporting the fee calculations under mitigation measure MM 4.3-8.

As such, the document's conclusion that "all reasonable and feasible mitigation has been required and will reduce the air emissions as close to a 'no net increase' from the current emissions over the next 21 years as is scientifically possible to quantify and confirm" is incorrect.¹⁸ Further, the October Draft EIR's conclusion that the Project's impacts with respect to a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard are "significant and unavoidable"¹⁹ are not supported by a full analysis of emissions or required mitigation.

II.A Emissions from Construction of Stationary Equipment Subject to Permitting under District Rule 2201 Are Significant and Unmitigated

The October Draft SREIR provides a discussion of and emission estimates for construction of stationary equipment subject to permitting by the SJVAPD.²⁰ Estimates for emissions from construction of this equipment during a single year are summarized in Table 1.

Table 1: Emissions from construction of stationary equipment subject to permitting under SJVAPCD Rule 2201 during a single year (tons/year)

	ROG	NOx	CO	SO ₂	PM10	PM2.5
Emissions	76	633	378	0.5	46.5	41.2
SJVAPCD significance threshold	10	10	100	27	15	15
Significant?	YES	YES	YES	no	YES	YES

From: October Draft SREIR, Table 4.3-12

As shown, ROG, NOx, CO, PM10, and PM2.5 emissions would exceed the District's CEQA thresholds of significance for construction multiple times over. The October Draft SREIR recognizes that "[t]otal Project emissions resulting from the construction of new facilities on an annual basis would exceed the SJVAPCD Criteria Pollutant Emissions Significance Thresholds except for SO₂. However," the document argues, "constructing of new facilities would be subjected to the District's air permitting process (Rule 2201), which would ensure that all emissions would have to be fully offset. Therefore, there would be no net increase in these emissions."²¹ This is incorrect.

¹⁸ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-143.

¹⁹ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-143.

²⁰ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, pp. 4.3-98 through 103 and Tables 4.3-12, 4.3-13.

²¹ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, pp. 4.3-102 and 103.

District Rule 2201 only regulates operational emissions from stationary sources, not construction emissions. Emissions associated with construction of stationary sources would ordinarily be subject to a project-specific CEQA document (unless categorically or ministerially exempt) whose preparation would now be pre-empted by the proposed ordinance.²² These construction emissions are also not included in the October Draft SREIR's calculation of fees to be paid under the OG-ERA. (The fee calculation only includes construction emissions from non-permitted equipment.²³) Thus, the identified significant criteria pollutant emissions from construction of stationary equipment subject to permitting requirements by the SJVAPCD, which would exceed the District's respective significance thresholds many times over, would not be mitigated and remain significant.

II.B Emissions from Operation of Stationary Equipment Subject to Permitting under District Rule 2201 Are Significant and Unmitigated

The October Draft SREIR provides a discussion of and emission estimates for operation of stationary equipment subject to permitting by the SJVAPCD.²⁴ This includes emissions from major stationary sources subject to Title V permitting and smaller operators not subject to Title V permitting. Estimates for emissions from operation of this equipment during a single year are summarized in Table 2.

Table 2: Emissions from operation of stationary equipment subject to permitting (Title V and non-Title V operators) under SJVAPCD Rule 2201 (tons/year)

	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Emissions	1,025.29	1,756.34	1,610.14	183.23	475.3	475.73
SJVAPCD significance threshold	10	10	100	27	15	15
Significant?	YES	YES	YES	YES	YES	YES

From: October Draft SREIR, Table 4.3-20

²² See October Draft SREIR, Vol. 1, Section 3 Project Description, p. 3-6 ("This SREIR provides project-level CEQA coverage for most future oil and gas air permits issued by the SJVAPCD, and also requires additional air quality mitigation for oil and gas activities pursuant to a new Voluntary Emission Reduction Agreement, as described in Section 4.3, Air Quality. This SREIR does not provide CEQA coverage for new or expanded cogeneration facilities, which likely would not be required as part of the Project.").

²³ See October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-126 ("For construction activities, all non-permitted emissions estimated for each Project year 2015 and 2035 are included in the table." ... "Table 4.3-29 presents the total non-permitted incremental emissions from the Project, excluding the non-permitted emissions from oil and gas production and processing activities initiated before the start of the Project in 2015."), p. 4.3-127 ("Table 4.3-30 presents the total estimated incremental emissions from the Project non-permitted equipment and activities in tons per year, divided by the projected number of new wells for each year that was used in the calculation of the emissions."), and p. 4.3-128 ("Table 4.3-31 presents the total estimated incremental increase in emissions from the Project nonpermitted equipment and activities in tons per year...").

²⁴ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, pp. 4.3-110 through 4.3-113 and Table 4.3-20.

The October Draft SREIR recognizes that emissions from stationary equipment requiring a permit would exceed the SJVAPCD's thresholds of significance for several criteria pollutants by significant amounts:²⁵

Project emissions would exceed the SJVAPCD Operational Emissions and, therefore, would represent a potentially significant impact. The annual contribution of PM₁₀ and PM_{2.5} would be almost 30 times the threshold. The emissions of ozone precursors (NO_x, ROG, and CO) would exceed their respective thresholds: NO_x would be almost 50 times the threshold, VOC more than 170 times the threshold, and CO more than eight times the threshold. However, all emissions increases from permitted equipment plus the 10% allowance from non-permitted equipment would be required to be fully offset pursuant to District Rule 2201. Offsets for emissions of NO_x and VOC would be required at a ratio of 1 to 1.5. Other criteria pollutants are assumed to be offset at a ratio of 1 to 1. Therefore, there would be no net increase in these emissions.

The October Draft SREIR explains that permitted stationary sources will only be allowed to move forward and be permitted by the SJVPACD if emissions are properly offset and if the SJVPACD approves an Authority to Construct ("ATC"), as required by District Rule 2201.²⁶ The October Draft SREIR's claim of "no net increase" on account of the applicability of District Rule 2201 is wrong.

District Rule 2201²⁷ specifies the following for emissions increases associated with a project (for purposes permitting by the SJVAPCD a "project" is the construction or modification of a "stationary source," which can involve construction or modification of one or more individual pieces of "stationary equipment" such as boilers, heaters, flares, etc.):

- 4.5.3 Offset requirements shall be triggered on a pollutant-by-pollutant basis. Unless exempted pursuant to Section 4.6, offsets shall be required if the post-project Stationary Source Potential to Emit (SSPE2) equals or exceeds the following offset threshold levels:

Table 4-1, Emissions Offset Threshold Levels

POLLUTANT	SSPE2 (POUNDS /YEAR)	Corresponds to (tons/year)
VOC	20,000	10
NO _x	20,000	10
CO	200,000	100
SO _x	54,750	27.38
PM ₁₀	29,200	14.6

These emission offset threshold levels are almost identical to the CEQA thresholds of significance established by the SJVAPCD for stationary sources 10 tons/year for

²⁵ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-111.

²⁶ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, pp. 4.3-73 and 4.3-88.

²⁷ SJVAPCD, Rule 2201, New and Modified Stationary Source Review Rule, adopted September 19, 1991, last amended February 18, 2016; available at:
<https://www.valleyair.org/rules/currnrules/Rule22010411.pdf>.

VOC/ROG or NO_x, 100 tons/year for CO, 27 tons/year for SO_x, and 15 tons/year of PM₁₀).

District Rule 2201, Section 4.7, clarifies that only emissions above the emission offset threshold levels must be offset:

4.7 Emission Offset Quantity Calculations:

4.7.1 For pollutants with a pre-project Stationary Source Potential to Emit (SSPE1) greater than the emission offset threshold levels, emission offsets shall be provided for:

4.7.1.1 All increases in Stationary Source emissions, calculated as the sum of differences between the post-project Potential to Emit (PE2) and the Baseline Emissions (BE) of all new and modified emissions units, plus

4.7.1.2 All increases in Cargo Carrier emissions.

4.7.2 For pollutants with a pre-project Stationary Source Potential to Emit (SSPE1) less than or equal to the offset threshold levels, emission offsets shall be provided for:

4.7.2.1 All increases in Stationary Source emissions above the offset trigger levels, calculated as the difference between the SSPE2 and the offset trigger level, plus

4.7.2.2 All increases in Cargo Carrier emissions.

In other words, operational emissions from stationary sources equal to or less than the offset threshold levels (10 tons/year for VOC/ROG or NO_x, 100 tons/year for CO, 27.38 tons/year for SO_x, and 14.6 tons/year of PM₁₀) are not required to be offset under District Rule 2201.

Moreover, District Rule 2201 includes another limitation: Section 4.6 of the rule specifies that emission offsets are also not required for operational emissions from the following exempt permitted stationary equipment: emergency standby equipment for electric power generation or any other emergency equipment that does not operate more than 200 hours per year.

In sum, the October Draft SREIR's assurance that under District Rule 2201 there would be "no net increase" in operational emissions of permitted stationary equipment²⁸ and its claim elsewhere that "... it is reasonable to assume that permitted stationary source emissions will continue to be offset under SJVAPCD rules and reduced or mitigated to below SJVAPCD's recommended significance thresholds"²⁹ are wrong.

²⁸ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-111.

²⁹ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-73.

In practice, an operator in Kern County may request a permit for a new stationary source from the SJVAPCD, and District Rule 2201 would allow the source to emit up to and including 10 tons/year for VOC/ROG or NO_x, 100 tons/year for CO, 27.38 tons/year for SO_x, and 14.6 tons/year of PM₁₀ without being required to purchase offsets. Only emissions above these offset threshold levels are required to be offset. Thus, even one new stationary source has the potential to emit as much or close to the SJVAPCD's CEQA thresholds of significance (10 tons/year for VOC/ROG or NO_x and 100 tons/year for CO, and 27 tons/year for SO_x, and 15 tons/year of PM₁₀) which would not be offset. If two (2) new stationary sources would be permitted and operated in the future under the proposed regulation, this could result in an increase of criteria pollutant emissions in the San Joaquin Valley Air Basin of up to 20 tons/year NO_x and VOC, 200 tons/year of CO, 54.76 tons/year of SO_x, and 29.2 tons/year of PM₁₀ and PM_{2.5}, which would not be offset. If 100 new stationary sources would be permitted and operated in the future under the proposed regulation, this could result in an in the San Joaquin Valley Air Basin in the future increase of 1,000 tons/year NO_x and VOC, 10,000 tons/year of CO, 2,738 tons/year of SO_x, and 1,460 tons/year of PM₁₀ and PM_{2.5}, which would not be offset. Emissions would by far exceed the respective CEQA thresholds of significance for these pollutants. In addition, the respective stationary sources would be permitted for operation of up to 200 hours per year of emergency equipment such as emergency generators, emergency fire water pumps. Emissions from emergency equipment, which are typically diesel-powered, are not required to be offset.

Given that District Rule 2201 allows a single new stationary source to emit so close to the significance threshold – with no obligation to offset increased emissions – it is therefore reasonable to assume that the combined emissions from multiple projects at one or multiple permitted stationary sources under the proposed regulation (the Project) would by far exceed the SJVAPCD's respective CEQA thresholds of significance. The October Draft SREIR, however, wholly fails to disclose this significant impact.

II.C Emissions from Construction and Operation of Permitted Stationary Equipment Are Not Accounted for under the Oil and Gas Emission Reduction Agreement (Mitigation Measure MM 4.3-8)

Emissions from construction and operation of permitted stationary equipment are also not accounted for by the October Draft SREIR in its calculation of emissions required to be mitigated under MM 4.3-8, the Oil and Gas Emission Reduction Agreement ("OG-ERA"). Thus, the October Draft SREIR fails to identify significant impacts on air quality due to emissions of criteria air pollutants from construction and operation of permitted stationary sources and fails to require all feasible mitigation. Because no further CEQA analysis would be required for stationary source projects before the SJVAPCD (by design of this Project), these emissions remain significant and unmitigated.

III. The October Draft SREIR Fails to Adequately Describe the Health Effects and Impacts on the Natural Environment of PM10 and PM2.5

I previously commented on the August Draft SREIR's failure to adequately describe the health effects of PM10 (coarse inhalable (or respirable) particulate matter with a diameter equal to or smaller than 10 micrometers) and PM2.5 (fine inhalable particulate matter with a diameter equal to or smaller than 2.5 micrometers) in the section *Criteria Air Pollutants and Health Effects* in Section 4.3 Air Quality. The October Draft SREIR's perfunctory attempts to rectify this issue fail to do so.

First, the October Draft SREIR provides additional discussion of the health effects and impacts on the natural environment of PM10 and PM2.5 but confusingly provides the discussion for both particulate sizes under the heading "Fine Particulate Matter (PM2.5)."

Second, despite these revisions, the October Draft SREIR still falls short of conveying the severity of health effects due to particulate pollution. For example, the October Draft SREIR fails to mention that, while particulate matter can cause health problems for everyone, certain people are especially vulnerable to adverse health effects including infants and children, the elderly, exercising adults, and those suffering from chronic lung disease such as asthma, bronchitis, or chronic obstructive pulmonary disease. Most importantly, the October Draft SREIR fails to adequately discuss the health effects associated with the two regulated size fractions. While the document recognizes that "PM10 and PM2.5 have fundamentally distinct ... health effects," it fails to provide a corresponding discussion for both particulate size fractions. The October Draft SREIR provides two additional sentences listing several long-term and short-term health effects of PM2.5 but fails to include such a discussion for PM10. Further, the discussion of PM2.5 health effects lacks specificity. Moreover, the October Draft SREIR fails to mention that exposure to particulate matter can cause lung cancer and result in poorer survival of people with lung cancer.

Third, the October Draft SREIR claims that the new section entitled "Oil and Gas Operations and Health Effects" "further discusses potential health effects of PM2.5, among other things."³⁰ This is incorrect. Out of the 50 synopses of studies presented by the October Draft SREIR in this section, not even one addresses the health effects of PM2.5. (The only summary that even mentions PM2.5, the summary of the 2020 State of the Air report published by the American Lung Association, only states that the report "includes a list of the top 25 most polluted cities in the United States for (i) 24-hour PM2.5, (ii), annual PM2.5...")

³⁰ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-16.

IV. The October Draft SREIR's Discussion of the Impact of OG-ERA Implementation (pursuant to Mitigation Measure 3.4-8) on PM_{2.5} Mitigation (and Other Criteria Pollutants) Is Inadequate

I previously commented on the August Draft SREIR that discussion regarding the County's primary mitigation measure for reducing significant emissions of fine particulates or PM_{2.5}, MM 4.3-8, is inadequate.³¹ The October Draft SREIR attempts to resolve the discussed shortcomings but fails to effectively do so, as discussed below.

IV.A The October Draft SREIR's Characterization of Particulate Matter Size Fractions and Potential PM_{2.5} and PM₁₀ Emission Reductions Remains Flawed

The October Draft SREIR revises terminology errors for particulate matter size fractions presented in the August Draft SREIR. This includes replacing incorrect references to PM₁₀ (inhalable coarse particles smaller than or equal to 10 µm in diameter) with the applicable size fraction PM_{2.5-10} (the coarse fraction of PM₁₀ with a diameter greater than 2.5 µm and equal to or less than 10 µm (in the literature typically referred to as PM_{10-2.5})). However, the October Draft SREIR does not provide an adequate discussion of this size fraction to aid the reviewer in understanding the implications of this change in terminology. I suggest that the County include such a discussion in the section *Criteria Air Pollutants and Health Effects*. (See Comment III.)

IV.B The October Draft SREIR Fails to Demonstrate that Sufficient Emission Reductions Are Available in Kern County and the San Joaquin Valley Air Basin to Offset Project PM_{2.5} (and other Criteria Pollutant) Emissions

I previously commented on the August Draft SREIR that there simply may not be enough pollution-reducing projects in the San Joaquin Valley Air Basin, let alone in Kern County, to reduce Project pollutant emissions to "close to a "no net increase" as "scientifically possible," as claimed.³² The October Draft SREIR's attempts to resolve this issue are not satisfactory.

In fact, the October Draft SREIR makes my point by providing a summary of the total percentage of available fee revenues used or encumbered under the SJVAPCD's emission reduction agreements ("ERAs"), including the OG-ERA, which shows that the highest percentage of fees used or encumbered in any given year between 2016 and

³¹ MM 4.3-8 involves the collection of fees from Project applicants under a Voluntary Emission Reduction Agreement ("VERA"), or Development Mitigation Contract ("DMC"), with the SJVAPCD entitled the Oil and Gas Emission Reduction Agreement ("OG-ERA"). Fees collected under the OG-ERA are intended to be spent on pollution-reducing projects administered by the SJVAPCD.

³² October Draft SREIR, Vol. 1, Section 4.3 Air Quality, pp. 4.3-66, 4.3-110, and 4.3-130.

2020 was 60.3% in 2017 and decreased to less than 40 percent of the available fees in the past two reporting period years (28.2% in 2019 and 35.5% in 2020).³³

Further, the October Draft SREIR claims:

To date, the SJVAPCD has received \$101,348,145 in mitigation fees and has spent or encumbered \$79,260,274. As the OG-ERA mitigation fees account for approximately 91% of the VERA fees received by the SJVAPCD, it is reasonable to conclude that 91% of the fees spent by the SJVAPCD are from OG-ERA mitigation fees. This would result in the SJVAPCD's having spent approximately 78% of the total OG-ERA mitigation fees that it had received as of June 30, 2020.³⁴

The October Draft SREIR's mental gymnastics for the percentage of total OG-ERA fees spent are not supported and are impossible to follow for the general public.

The amounts and percentages cited by the October Draft SREIR are based on the SJVAPCD's Annual Reports for ISR/ERAs for reporting years 2016 through 2020³⁵ and are derived as follows:

- The total collected fees of **\$101,348,145** collected by the SJVAPCD is based on the reporting years 2016 through 2020 for ERAs.
- The total fees of **\$79,260,274** spent or encumbered by the SJVAPCD is based on the reporting years 2016 through 2020 for ERAs.
- In contrast, the figure of **91%** of all fees accounted for by OG-ERA fees claimed by the October Draft SREIR is based on the total OG-ERA fees and ERA fees collected by the SJVAPCD in the reporting years 2017 through 2020: (total OG-ERA fees collected: \$84,719,099)/(total ERA fees collected: \$92,736,139) = 0.91.
- The percentage of **78%** was again derived based on total ERA fees spent and encumbered in the reporting years 2016 through 2020: (total ERA fees spent and encumbered: \$79,260,274)/(total ERA fees collected: \$101,356,342) = 0.78.

The October Draft SREIR's reasoning that it is "reasonable to conclude that 91% of the fees spent by the SJVAPCD are from OG-ERA mitigation fees" is not supported. Specifically, according to the ISR/ERA Annual Reports, the SJVAPCD collected fees under ERAs since at least 2009.³⁶ Because fees collected are not necessarily spent in the

³³ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, Table 4.3-CC.

³⁴ October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-138.

³⁵ SJVAPCD, Annual Reports, Indirect Source Review Program; available at: <https://www.valleyair.org/ISR/ISRResources.htm#ISRReports>.

³⁶ It is possible that the SJVAPD collected ERA fees earlier than 2009 but collected fees are not specifically broken out in the ISR Annual Reports.

same reporting year, as evidenced by the rolling beginning fund balance in the ISR Annual Reports, the percentage of fees spent compared to the percentage of fees collected varies from year to year and within certain time periods. Further, the amount ‘encumbered’ in any given year is rolled into the next reporting year beginning fund balance and shows up as ‘amount spent’ if the projects for which the amount was encumbered is realized in that reporting year. What matters is the total amount of fees collected by the SJVAPCD over the life of the ERA program (from 2009 through 2020: \$104,767,522) and the amount spent to date (from 2009 through 2020: \$42,242,283), as summarized in Table 4.

Table 4: Fees collected and spent under SJVAPCD ERA program

Year	Amount Collected	Amount Spent
2009	\$152,073	\$2,199,013
2010	\$(83,779)	\$165,092
2011	\$672,598	\$290,200
2012	\$937,509	\$802,793
2013	\$304,616	\$382,650
2014	\$124,459	\$354,391
2015	\$1,311,901	\$807,889
2016	\$8,612,006	\$1,395,589
2017	\$8,998,493	\$3,767,002
2018	\$20,287,656	\$9,396,146
2019	\$42,915,629	\$12,461,331
2020	\$20,534,361	\$10,220,187
Total	\$104,767,522	\$42,242,283

From: SJVAPCD, Annual Reports, Indirect Source Review Program; available at:

<https://www.valleyair.org/ISR/ISRResources.htm#ISRReports>

The resulting percentage of fees collected vs. fees spent is far less impressive: $(\$104,767,522)/(\$42,242,283) = 0.43$ or 43%. In sum, the Draft SREIR may not arbitrarily select a five-year period (2006 through 2020) to determine what amount of OG-ERA fees have been spent or encumbered. Thus, the Draft SREIR’s claim that this “would result in the SJVAPCD’s having spent approximately 78% of the total OG-ERA mitigation fees that it had received as of June 30, 2020” is not supported.

The October Draft SREIR further attempts to support its presumption that sufficient emission reduction projects exist to spend the fees collected under the OG-ERA:

Further, the SJVAPCD 2020 ISR Annual Report, dated September 17, 2020, states that, “[s]ince the [June 30, 2020] end of the reporting period for this report, the vast majority of the unencumbered balance has now been encumbered or is in the process of being encumbered for emission reduction projects during this fiscal year” (SJVAPCD 2020c). Thus, very few to no mitigation fees will be carried over into 2021 by the SJVAPCD.

Here, I note that the statement in the SJVAPCD's 2020 Annual Report³⁷ refers to the fees collected under both the ISR and the ERA programs, whose fee collection and expenditures are administered separately. Since the SJVAPCD received only about half of the fees it collected under both programs than the reporting year before (2020 total amount received: \$27,957,468; 2019 total amount received: \$51,697,087), as a result of the OGERA no longer being implemented by the County as of March 25, 2020, this statement does not conclusively indicate that there will be sufficient emission reduction projects once the County would again submit fees under the OG-ERA. Further, even if most of the unencumbered balance of 52,571,184 was in fact encumbered after June 30, 2020, the end of the reporting period for the 2020 Annual Report, this amount of mitigation fees will be carried over into the beginning balance of 2021, contrary to the Draft SREIR's claim.

IV.C The October Draft SREIR Fails to Demonstrate that the OG-ERA Would Result in Sufficient PM2.5 Emission Reductions

I previously commented that the intent of the OG-ERA (under MM 4.3-8) to offset the Project's emissions increases for all pollutants from sources other than those from permitted stationary sources to net zero is neither tracked nor enforceable. The October Draft SREIR's attempts to resolve this issue are not satisfactory.

The list of all emission reduction projects funded by the ISR-VERA programs provided in Appendix A to the SJVAPCD's most recent ISR Annual Report shows that the majority of projects resulting in particulate matter emission reductions currently funded by the District involve wood stove replacement (65% of projects resulting in 79.1% of PM10 reduction) and about 9% are attributable to alternative agricultural burning.

³⁷ SJVAPCD, 2020 Annual Report, Indirect Source Review Program Reporting Period: July 1, 2019 to June 30, 2020; available at: <https://www.valleyair.org/ISR/Documents/2020-ISR-Final-Annual-Report.pdf>.

Table 3: Emission reduction projects from the SJVAPCD's 2020 ISR Annual Report

Equipment	Count of Projects	Sum of NOx		Sum of PM10		Percent Engine Combustion
		(tons/project life)	Percent	(tons/project life)	Percent	
Ag Pump Alt Fuel to Electric	2	16.8	1.4%	0.4	0.1%	0.1%
Ag Pump Diesel to Electric	1	11.1	0.9%	0.6	0.1%	0.1%
Ag Vehicle Replacement	144	876.2	71.5%	59.4	9.4%	9.4%
Ag Vehicle Replacement 2 for 1	1	6.3	0.5%	0.3	0.0%	0.0%
Alternative Ag Burning	8	33.1	2.7%	55.9	8.8%	
Dust Control Mitigation	1		0.0%	7.9	1.3%	
Engine Repower	4	18.6	1.5%	0.6	0.1%	0.1%
EV Vehicle Rebate	734	5.8	0.5%	0.7	0.1%	
Heavy-Duty Truck New Purchase	8	10.5	0.9%	0.0	0.0%	0.0%
Heavy-Duty Vehicle Replacement	16	40.3	3.3%	0.7	0.1%	0.1%
Locomotive Replacement	2	139.0	11.3%	5.4	0.8%	0.8%
Truck Replacement	32	68.1	5.6%		0.0%	0.0%
Wood Stove New Device	1,773		0.0%	500.0	79.1%	
Grand Total	2,726	1,225.8	100.0%	631.8	100.0%	10.6%

As shown in Table 3, less than 11% of PM10 reductions are attributable to engine combustion. While particulate matter emissions from wood stoves and agricultural burning are also harmful, this summary clearly shows that the projects funded by the SJVAPCD are unlikely to include the types of projects envisioned by the October Draft SREIR to be offset under the OG-ERA, which mostly involve reductions of engine combustion emissions, particularly reductions of diesel engine combustion emissions.³⁸

V. The October Draft SREIR Must Require All Feasible Mitigation Measures to Reduce Significant Impacts During Construction and Operation of the Project

I previously commented that the August Draft SREIR's approach to mitigating the substantial emissions resulting from construction and operation of the Project over its 21-year life is severely deficient. The October Draft SREIR fails to adequately address this problem.

V.A Project Construction Emissions

Combustion and Fugitive Dust Emissions

The October Draft SREIR makes only minor changes to one mitigation measure, MM 4.3-2 (Fugitive Dust Control Plan), that do nothing to address the substance of my prior comments on the August Draft SREIR, Section V, regarding mitigation for project

³⁸ See October Draft SREIR, Vol. 1, Section 4.3 Air Quality, p. 4.3-138. ("Example projects mentioned in this SREIR and the 2015 FEIR include: Replacing or retrofitting diesel-powered stationary equipment with electric or other lower-emissions engines; Replacing or retrofitting diesel-powered school, transit, municipal, and other buses, car fleets, and maintenance equipment with electric or other lower-emission engines; Reducing emissions from public infrastructure sources; Funding lower-emission equipment for local businesses, schools, and institutions; Adding diesel particle filters; Upgrading to cleaner engines; and Making changes to fleets and trucks, implementing van pools or other trip-reduction programs.")

emissions, which thus remain applicable. I also previously addressed the lack of adequate mitigation in my comments on the 2015 Final EIR and provided a long list of additional feasible mitigation measures compiled and required by other agencies for fugitive dust control.³⁹ These comments remain applicable and are herewith incorporated by reference.

In addition, my colleague Dr. Phyllis Fox recommended a long list of feasible mitigation measures for combustion emissions in her comments on the 2015 Final EIR.⁴⁰ These mitigation measures are herewith incorporated by reference. I recommend that the County reevaluate the applicability of the described mitigation measures and explain in detail why each mitigation measure found not to be feasible, is not applicable.

Valley Fever

I previously commented on the August Draft SREIR that mitigation measure MM 4.3-6 (Valley Fever and Pandemics) is inadequate. The October Draft SREIR “clarifies” mitigation measure MM 4.3-6 to include the requirement for an informational handout on Valley Fever; training of construction personnel on proper use of personal protective equipment; and the requirement to provide a NIOSH-approved respirator upon request. In addition, MM 4.3-6 now requires a \$25 fee per individual well to be used by the County for continued Valley Fever education and outreach. Amended mitigation measure MM 4.3-6 remains inadequate.

I recommend that mitigation measure MM 4.3-6 be amended to require that evidence of training be provided to County’s Planning and Natural Resources Department within 24 hours of the training session, which is, *e.g.*, required by the 99 Houghton Industrial Park Project cited in my prior comments.

Further, over the past decade, my colleague Dr. Phyllis Fox and I have summarized studies and prepared a list of feasible mitigation measures developed by other agencies for reducing exposure to Valley Fever, which are discussed in a recent comment letter by Dr. Phyllis Fox (*see* Attachment Fox Comments at pp. 13-19). I recommend that the County consider these mitigation measures or discuss why each mitigation measure is not feasible here.

V.B Project Operational Emissions

As discussed in Comment II, operational emissions from stationary sources are significant and must be mitigated. I recommend that the County require that all emission increases be reduced by *first* evaluating the potential for onsite emission

³⁹ See October Draft SREIR, Vol. 8, AR 159172-159200.

⁴⁰ See AR 155605-155686.

reductions for each operator, and, if not feasible, to require offsets for all emissions below or equal to the offset emissions thresholds in District Rule 2201.

VI. Conclusions and Recommendation

Based on the above-described analytical and mitigation failures, the October Draft SREIR does not provide the requisite information necessary for a decision on the Project. I recommend that the County revise Sections 4.3 Air Quality and 4.7 Greenhouse Gas Emissions based on the above discussion and urge the County to incorporate all feasible measures before resorting to offsets under the OG-ERA.

Please call me at (415) 492-2131 or e-mail at petra.pless@gmail.com if you have any questions about the comments in this letter.

Sincerely,

A handwritten signature in black ink, appearing to read 'Petra Pless', with a stylized flourish above the name.

Petra Pless, D.Env.

Errata to September Comments on August Draft SREIR: Revised Attachment 3

Attachment Fox Report

**Revised Attachment C to
Pless Comments on August Draft SREIR**

Attachment C

I. Cost of Emission Reductions

Between 2014 and 2019, the cost per ton of pollutants (NO_x+PM₁₀) removed under the VERA program has more than doubled from \$4,602 per ton to \$9,713 per ton, as shown in Figure C-1.¹ In the same period, the total cost of emissions reductions funded under the ISR program increased from \$9,074 per ton to \$10,988 per ton, an increase of about 20%.² (Total costs under the combined ISR-VERA program increased from \$6,987 per ton to \$10,025 per ton, an increase of about 40%.³)

Figure C-1: Cost per ton of VERA-funded emission reduction projects 2014–2019

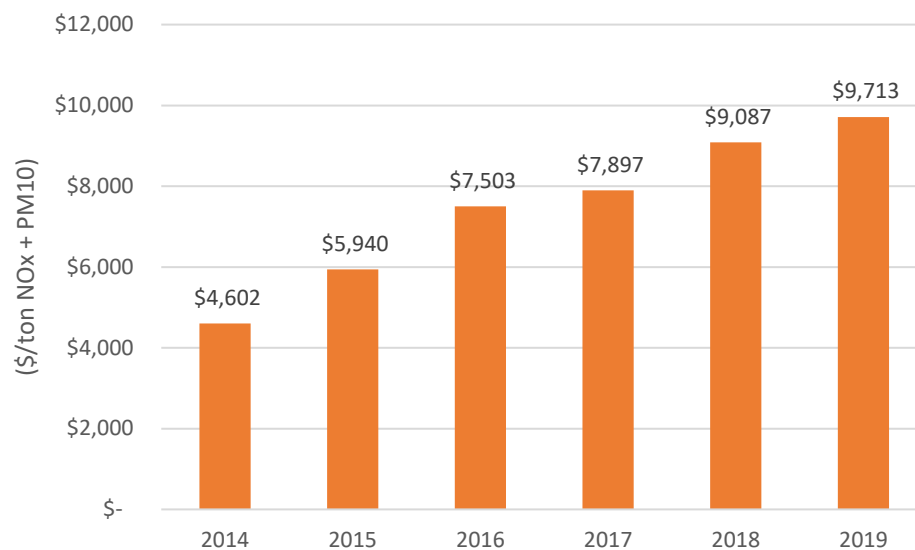


Figure C-1 does not include the years before 2013 because the District's ISR Reports for 2011 and 2012 contain substantial errors in the calculation of the cost per ton of emission reductions for VERA-funded projects, as summarized in Table C-1. (The cost per ton values of ISR-funded projects are incorrectly calculated for years 2011 through 2013.) Table C-1 summarizes the emission reductions (NO_x+PM₁₀) achieved through VERA-funded projects, the amount spent, and the cost per ton presented by the ISR Reports for 2011 and 2012. In addition, Table C-1 shows the revised cost per ton when correctly calculated as: (Amount Spent) / (Achieved NO_x + PM₁₀ Emission Reductions).

¹ $(\$9,713/\text{ton})/(\$4,603/\text{ton}) = 2.11$.

² $(\$10,/\text{ton})/(\$4,602/\text{ton}) = 1.21$.

³ $(\$10,988/\text{ton})/(\$9,074/\text{ton})=1.4$.

**Table C-1: Cost per ton of achieved emission reductions under VERA program
as presented in 2011 and 2012 ISR Reports and revised**

Year	Achieved NOx+PM10 Emission Reductions (ton)	Amount Spent (\$)	Cost per ton in ISR Report (\$/ton)	Revised Cost per ton (\$/ton)
2011	48.3	\$(290,200)	\$10,166	\$6,008
2012	278.5	\$(802,793)	\$5,329	\$2,883

II. Discrepancies in ISR/VERA Reports

The ISR Report for 2014, Table 1: ISR-VERA Fiscal Summary,” assumes an incorrect “Beginning Fund Balance” for ISR and Total, which appears to be a transcription error as shown in Table C-2 and discussed below.

Table C-2: ISR-VERA Fiscal Summary for 2014 and 2013

ISR-VERA Fiscal Summary	2014			2013		
	ISR	VERA	Total	ISR	VERA	Total
Beginning Fund Balance	\$848,957	\$1,067,094	\$1,916,051	\$6,799,402	\$1,145,128	\$7,944,530
Offsite Mitigation Fees Collected ^a	\$3,744,985	\$124,459	\$3,869,444	\$958,245	\$304,616	\$1,262,861
Offsite Mitigation Fees Refunded ^a	\$0	\$0	\$0	\$0	\$0	\$0
Offsite Mitigation Fees Available after Refunds ^{a,b}	\$3,744,985	\$124,459	\$3,869,444	\$958,245	\$304,616	\$1,262,861
Available Balance ^c	\$4,593,942	\$1,191,553	\$5,785,495	\$7,757,647	\$1,449,744	\$9,207,391
Amount Spent	\$(798,528)	\$(354,391)	\$(1,152,919)	\$(3,868,692)	\$(382,650)	\$(4,251,342)
Ending Fund Balance ^d	\$3,795,414	\$837,162	\$4,632,576	\$3,888,955	\$1,067,094	\$4,956,049
Encumbered Amount	\$(2,595,559)	\$(759,389)	\$(3,354,948)	\$(3,039,998)	\$0	\$(3,039,998)
Ending Unencumbered Balance	\$1,199,855	\$77,773	\$1,277,628	\$848,957	\$1,067,094	\$1,916,051
Ending Fund Balance not transferred from 2013 to 2014	\$3,039,998	\$0	\$3,039,998			

Note: Uncolored fields are from 2013 and 2014 ISR Reports; fields in grey are calculated

- a Later ISR Reports change the labels to “Amount Received” and “Amount Refunded” and eliminate the “... after Refunds” field
- b (Offsite Mitigation Fees Available after Refunds) = (Offsite Mitigation Fees Collected) + (Offsite Mitigation Fees Refunded)
- c (Available Balance) = (Beginning Fund Balance) + (Offsite Mitigation Fees Available after Refunds)
- d (Ending Fund Balance) = (Available Balance) + (Amount Spent)

As shown in Table C-2, the 2014 ISR Report incorrectly transcribes the “Ending Unencumbered Balance” from 2013 to the “Beginning Fund Balance” for 2014 rather than transcribing the “Ending Fund Balance” from 2013. (The “Ending Fund Balance” is calculated as: the sum of (Beginning Fund Balance) + (Offsite Mitigation Fees Available after Refunds) + (Amount Spent).) The error appears to stem from the fact that ISR Reports prior to 2012 did not specify the amounts of “encumbered” expenditures, i.e., amounts that had been committed to projects but had not resulted in emission reductions in that year (thus, encumbered amounts are accounted for in the following year) and therefore the “Ending Fund Balance” was the same as the “Ending Unencumbered Balance” and was simply called “Ending Balance.” When the 2012 ISR Report introduced the amount of “encumbered” expenditures, it failed to provide separate amounts for “Ending

Attachment C

Page 5

Fund Balance” and “Ending Unencumbered Balance” and incorrectly retained the label “Ending Balance” for what was now the “Ending Unencumbered Balance.” While the 2014 ISR Report appeared to recognize this problem and eliminated the label “Ending Balance,” instead specifying both “Ending Fund Balance” and “Ending Unencumbered Balance” for that year, it failed to correctly transcribe the “Ending Fund Balance” from 2013. As shown, this transcription error in effect “lost” about \$3 million from the ISR program funds. This error was not corrected in any of the subsequent ISR Reports and the discrepancy is thus carried forward into the year 2019.

0061-207
Cont'd

Attachment Fox Report

Phyllis Fox, PhD, PE
745 White Pine Ave.
Rockledge, FL 32955

February 28, 2020

Kyle C. Jones
Adams Broadwell Joseph & Cardozo
520 Capitol Mall, Suite 350
Sacramento, CA 95814

Re: Campo Wind FEIS: Response to Valley Fever Comment VF-1

Dear Mr. Jones:

As you requested, I have reviewed the response to comments on Valley Fever, addressed in global response 2.16.¹ In my opinion, the response fails to address the comments raised on Valley Fever. The impact of Project construction will result in significant health impacts to construction workers. The FEIS must be revised to include additional mitigation identified below.

My resume is included in Exhibit 1 to this letter. I have over 40 years of experience in the field of environmental engineering, including air emissions and air pollution control; greenhouse gas (GHG) emission inventory and control; health risk assessment; Valley Fever; water quality and water supply investigations; hazardous waste investigations; risk of upset modeling; environmental permitting; nuisance investigations (odor, noise); environmental impact reports (EIRs and EISs), including CEQA/NEPA documentation; risk assessments; and litigation support. I have MS and PhD degrees in environmental engineering from the University of California at Berkeley. I am a licensed professional engineer in California.

My work has been cited in two published CEQA opinions: (1) *Berkeley Keep Jets Over the Bay Committee, City of San Leandro, and City of Alameda et al. v. Board of Port Commissioners* (2001) 111 Cal. Rptr. 2d 598 and (2) *Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal. 4th 310 and has supported the record in many other CEQA and NEPA cases.

¹ Campo Wind Final Environmental Impact Statement, Appendix T: Responses to Public Comments, Response 2.16: Public Health and Safety: Valley Fever; available at <http://campowind.com/>.

San Diego County Valley Fever Incidence Rate Underestimated

First, the global response to comments on Valley Fever² reports a Valley Fever incidence rate within San Diego County during 2010 to 2015 of >0 to 5.9 individuals affected out of a population of 100,000. This is outdated information. It is well known that Valley Fever has been on the rise in California. The most recent statistics reported by the California Department of Public Health (CDPH) indicate that the incidence rate of Valley Fever in San Diego County has consistently increased from 3.5 cases per 100,000 in 2015 to 8.2 cases per 100,000 in 2018, or nearly double that reported in Response 2.16. Table 1. Thus, the potential for Valley Fever outbreaks at the Project site is much higher than disclosed in Response 2.16.

Table 1: Reported Cases of Valley Fever in San Diego County^{3,4}

Year	No. of Cases	Rate Cases/100,000
2015	113	3.5
2016	132	4.0
2017	276	8.3
2018	276	8.2
2019	298	-

Second, the reported incidence rates are significant underestimates. The CDC, for example, reports that “the number of Coccidioidomycosis cases reported to NNDSS is likely an underestimate of the actual number of cases that occur nationwide because of underdiagnosis and underreporting. Some persons infected with *Coccidioides* develop a relatively mild illness and either do not seek medical care or do seek care but never receive a diagnosis of Coccidioidomycosis, partially because interpretation of test results is complex.”⁵ This is most likely the case in the Project area, which is sparsely

² FEIS, Response 2.16.

³ California Department of Public Health (CDPH), Epidemiologic Summary of Coccidioidomycosis in California, 2018, p. 6; available at <https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciEpiSummary2018.pdf>.

⁴ CDPH, Coccidioidomycosis in California, Provisional Monthly Report, January– December 2019 (as of December 31, 2019), pdf 2-3, year of estimated onset; available at <https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciinCAProvisionalMonthlyReport.pdf>.

⁵ Kaitlin Benedict and others, Surveillance for Coccidioidomycosis – United States, 2011-2017, Surveillance Summaries, September 20, 2019, v. 68, no. 7, pp. 1-15; available at <https://www.cdc.gov/mmwr/volumes/68/ss/ss6807a1.htm>. See also: Miriam Raftery, Valley Fever Epidemic Linked to Desert Solar Construction; Heightens Concerns Over Risks from Large-Scale Wind and Solar Projects, East County Magazine, May 2013; available at <https://www.eastcountymagazine>.

populated and lacks sophisticated medical facilities and trained medical professionals that could detect Valley Fever.

The CDC also reports that “[t]he number of Valley fever cases reported to CDC likely underestimates the true number of Valley fever cases. Tens of thousands more illnesses likely occur and may be misdiagnosed because many patients are not tested for Valley fever.”⁶ Others concur: “The disease is widely underdiagnosed, however, and these cases most likely represent a small fraction of the true number.”⁷ Elsewhere: “Symptomatic patients frequently have an influenza-like syndrome characterized by cough, shortness of breath, fever, and fatigue that is commonly diagnosed as community-acquired pneumonia.”⁸

Regardless, the number of cases in the Project area is not informative because it is sparsely populated. The Project will be located in zip codes 91906 (Campo) and 91962 (Pine Valley).⁹ The incident rate map for San Diego County does not report Valley Fever incidence rates for these zip codes due to their very sparse population.¹⁰ The population in these zip codes are 3,426 and 2,530, respectively.¹¹ Assuming, arguendo, that zip code 91906 had an incidence rate of 15 cases per 100,000 population, the highest in the county, the number of Valley Fever cases in this zip code would be less than one¹² and thus likely not reported or detected. Further, it is likely that medical facilities in the Project zip codes are not equipped to detect Valley Fever. Thus, it is irrelevant that the reported incident rate of Valley Fever in the area is low.

[org/valley-fever-epidemic-linked-desert-solar-construction-heightens-concerns-over-risks-large-scale-win](http://valley-fever-epidemic-linked-desert-solar-construction-heightens-concerns-over-risks-large-scale-win).

⁶ CDC, Valley Fever (Coccidioidomycosis) Statistics; available at <https://www.cdc.gov/fungal/diseases/coccidioidomycosis/statistics.html>.

⁷ Michael Freedman and others, Coccidioidomycosis Outbreaks, United States and Worldwide, 1940-2015; *Emerging Infectious Diseases*, v. 24, no. 3, March 2019; available at https://wwwnc.cdc.gov/eid/article/24/3/17-0623_article.

⁸ Ibid.

⁹ https://www.titleadvantage.com/mdocs/SD_ZipCodes_South.pdf.

¹⁰ County of San Diego Health and Human Services Agency, San Diego County Communicable Disease Report, 2017, pdf 19; available at https://www.sandiegocounty.gov/content/dam/sdc/hhsa/programs/phs/documents/San_Diego_County_Annual_Communicable_Disease_Report_2017.pdf.

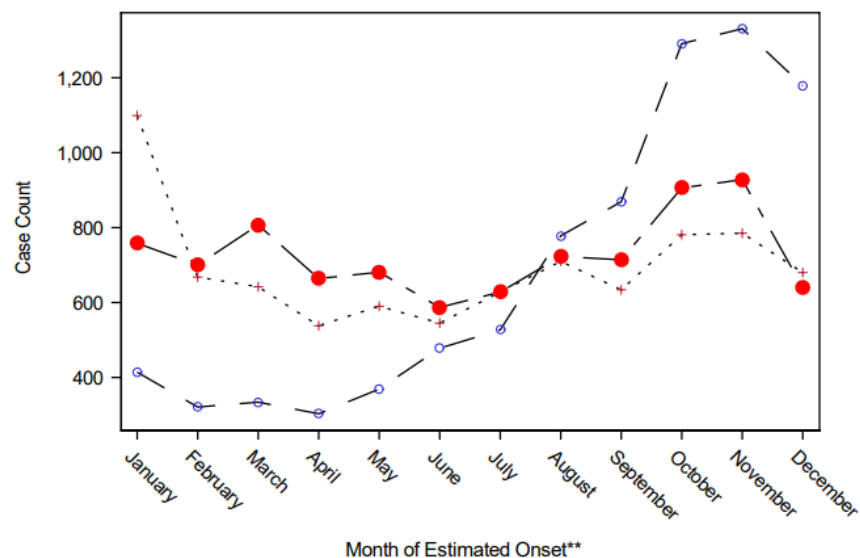
¹¹ California Zip Codes by Population; available at: https://www.california-demographics.com/zip_codes_by_population.

¹² Number of cases in zip code 91906 = (5)(3426)/100,000 = 0.17 <1.

Seasonal Valley Fever Incidence Rate Misrepresented

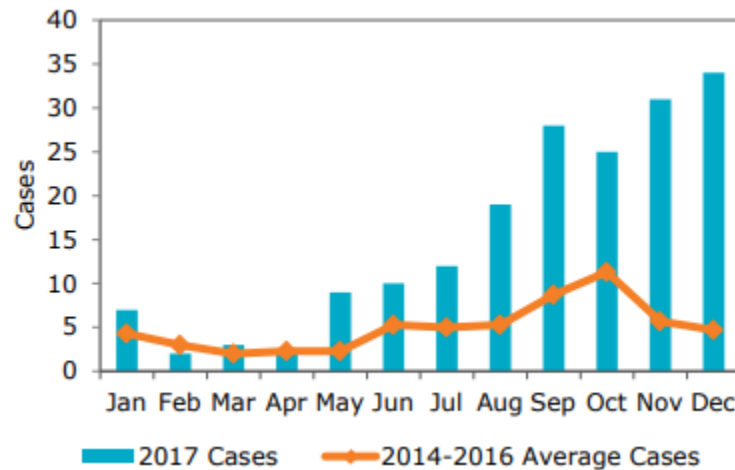
Third, the response asserts that even if the fungus is present at the site, earthmoving activities may not result in increased incidence because propagation is dependent on climatic conditions, with the highest potential for exposure “following early seasonal rains and long dry spells.” This is also misleading. The Valley Fever case count starts to increase in the April to June period and peaks in September to November, the peak construction period. Figures 1 and 2.

Figure 1: Reported Suspect, Probable, and Confirmed Cases of Coccidioidomycosis by Month and Year of Estimated Onsite, California, 2017-2019¹³



¹³ Ibid., pdf 4.

Figure 2: Acute Coccidioidomycosis Cases by Month of Onset, San Diego County, 2017¹⁴



Project Site Valley Fever Incidence Rate Misrepresented

Fourth, the response asserts that “[c]onfirmed cases of valley fever have not been recorded near the Project Site or during construction of other similar projects and earthmoving activities in the area.”¹⁵ However, the response fails to identify any similar projects or significant earthmoving activities in the area comparable to the Project.

The FEIS identifies seven cumulative projects that have been constructed.¹⁶ However, they are all very small with limited earthmoving, located 1.3 to 4.75 miles from the Project site. None required an EIR/EIS and some were exempt from CEQA. These projects prove nothing about the presence of Valley Fever spores at the Project sites and the risk they pose to construction workers. The only way to confirm the absence of Valley Fever spores at the construction sites is by testing the soil.

The proposed site has the potential to contain Coccidioidomycosis spores because all of San Diego County is endemic for Valley Fever. The incident rate is low in the Project area because it is sparsely populated. Because it is well known that Valley Fever spores can easily become airborne when soil is disturbed,¹⁷ the Project

¹⁴ San Diego County Annual Communicable Disease Report 2017, pdf 19; available at https://www.sandiegocounty.gov/content/dam/sdc/hhsa/programs/phs/documents/San_Diego_County_Annual_Communicable_Disease_Report_2017.pdf.

¹⁵ FEIS, Response 2.16.

¹⁶ FEIS, Appendix N.

¹⁷ A. J. Colson et al., Large-Scale Land Development, Fugitive Dust, and Increased Coccidioidomycosis Incidence in the Antelope Valley of California, 1999-2014, *Mycopathologia*, Published online January 13, 2017, p. 451 (“A correlation between soil disturbances due to large-scale renewable energy construction

construction sites should be tested well in advance of construction to determine if spores are present. Accurate test methods have been developed and used in similar applications.^{18,19} A study conducted in the Antelope Valley, slated for six solar ranches of varying sizes, concluded that soil analyses should be conducted before soil disturbance in endemic areas, noting: “Based on the findings of this study, we recommend that EIRs include soil analyses for *Coccidioides* spp. on land destined for construction of any type in endemic areas of the pathogen.”²⁰ An Environmental Assessment for a solar project has required soil testing.²¹

Risk to Construction Workers Misrepresented

Fifth, the response asserts that “[e]ven if the fungus is present at a site, earthmoving activities may not result in increased incidence of valley fever ... exposure to *Coccidioides* does not guarantee that an individual will become ill...” This is inconsistent with experience at similar sites. The CDPH specifically notes that construction workers in endemic areas, such as those that will build the Project, are at risk.^{22,23}

projects, agricultural management practices and PM10 fugitive dust emission with increased incidence of coccidioidomycosis was clearly indicated by results of this study.”), p. 456 (“One such danger is *Coccidioides* spp. arthroconidia becoming airborne when soil is disturbed and dust mitigation measures are inefficient or absent.”); available at <http://www.knowthecause.com/downloads/Colson2017FugitiveDustCoccidioides.pdf>.

¹⁸ J. R. Bowers et al., Direct Detection of *Coccidioides* from Arizona Soils Using CocciENV, a Highly Sensitive and Specific Real-time PCR Assay, *Medical Mycology*, 2018, Exhibit 2; and Proceedings of the 60th Annual Coccidioidomycosis Study Group Meeting, April 8–9, 2016, Fresno, CA; available at <http://coccistudygroup.com/wp-content/uploads/2016/10/CSG-60th-Annual.pdf>.

¹⁹ Colson et al. 2017, pp. 439–458.

²⁰ Colson et al. 2017, p. 456.

²¹ Final Environmental Assessment for Construction, Operation, and Decommissioning of a Solar Photovoltaic System at Marine Air Ground Task Force Training Command Marine Corps Air Ground Combat Center, Twentynine Palms, California, November 2015, Table ES-1, AQ-17, available at [https://www.29palms.marines.mil/Portals/56/Docs/G4/NREA/Environmental%20Assessment%20Construction%20and%20Operation%20of%20Solar%20Photovoltaic%20System%20at%20MAGTFTC,%20CAGCC%20\(Final\)%20November%202015.pdf](https://www.29palms.marines.mil/Portals/56/Docs/G4/NREA/Environmental%20Assessment%20Construction%20and%20Operation%20of%20Solar%20Photovoltaic%20System%20at%20MAGTFTC,%20CAGCC%20(Final)%20November%202015.pdf).

²² CDPH, June 2012; Jason Wilken, Preventing Valley Fever in Construction Workers, August 21, 2018 (Wilken 2018); available at <https://www.cdph.ca.gov/Programs/CCDCPH/DEODC/OHB/CDPH%20Document%20Library/CDPH-VF-Webinar-Slides.pdf>. Recording available at <https://cdph-conf.webex.com/cdph-conf/lr.php?RCID=bc2a65f06de80b7326ac17fc0cf25caa>. Passcode: VFeverAug21.

²³ Wilken 2018.

Dust exposure is one of the primary risk factors for contacting Valley Fever.²⁴ Specific occupations and outdoor activities associated with dust generation, such as construction, increase the risk of exposure and infection.²⁵ The risk appears to be more specifically associated with the amount of time spent outdoors than with doing specific activities.²⁶

The most at-risk populations are Project construction workers and travelers on local roads.²⁷ Construction workers are the very population that would be most directly exposed by the Project. A refereed journal article on occupational exposures notes that “[l]abor groups where occupation involves close contact with the soil are at greater risk, especially if the work involves dusty digging operations.”²⁸ One study reported that at study sites, “generally 50% of the individuals who were exposed to the dust or were excavating dirt at the sites were infected.”²⁹ Significant digging will be required to construct the Project. The total disturbed area within the Campo Corridor would be about 800 acres, while the total disturbed area within the Boulder Brush Corridor would be about 130 acres.³⁰ In addition, 15 miles of new on-reservation roads would be constructed and 15 miles of existing roads would have to be widened up to 40 feet.³¹

In investigations at construction sites in San Luis Obispo County in 2007, 10 of 12 (83%) of the construction workers contracted Valley Fever at one site. At two adjacent solar farms in 2011–2014, 44 construction workers out of 3,572 workers were laboratory-confirmed to have a *Coccidioides* infection. Of these, 39% visited an emergency room; 20% were hospitalized; 77% missed work, ranging from 1 day to over 1.5 years (22 days average); and in 5% of the workers, the disease spread outside of the lungs. An incidence rate of 5,618 cases per 100,000 population

²⁴ G. L. Sondermeyer Cooksey et al., Dust Exposure and Coccidioidomycosis Prevention Among Solar Power Farm Construction Workers in California, *American Journal of Public Health*, August 2017, Exhibit 3; Rafael Laniado-Laborin, Expanding Understanding of Epidemiology of Coccidioidomycosis in the Western Hemisphere, *Annals of the New York Academy of Sciences*, v. 111, 2007, pp. 20–22, available at <https://nyaspubs.onlinelibrary.wiley.com/doi/abs/10.1196/annals.1406.004>; Fisher et al. (“All of the examined soil locations are noteworthy as generally 50% of the individuals who were exposed to the dust or were excavating dirt at the sites were infected.”).

²⁵ See, e.g., Mark Nicas, Determining Occupational Causation of Coccidioidomycosis – Two Case Studies, p. 13, in: Proceedings of the 62nd Annual Coccidioidomycosis Study Group, April 13–14, 2018; available at https://vfce.arizona.edu/sites/default/files/csg_62nd_annual.pdf.

²⁶ Kern County Public Health Services Department, Prevention (“The risk appears to be more specifically associated with the amount of time spent outdoors than with doing specific activities”); available at <http://kerncountyvalleyfever.com/what-is-valley-fever/prevention/>.

²⁷ Lawrence L. Schmelzer and R. Tabershaw, Exposure Factors in Occupational Coccidioidomycosis, *American Journal of Public Health and the Nation's Health*, v. 58, no. 1, 1968, pp. 107–113, Table 3; available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1228046/?page=1>.

²⁸ *Ibid.*, p. 110.

²⁹ Fisher et al., 2007.

³⁰ FEIS, Appendix B, p. B-1.

³¹ FEIS, Appendix B, p. B-5.

was calculated, compared with the 2012 incidence rate for San Luis Obispo County of 38.4 cases per 100,000 population.³² In follow-up surveys of solar plant workers in the county, 89 more workers were found with clinically suspect Coccidioidomycosis that was not laboratory-confirmed Valley Fever symptoms.³³ More than 100 additional workers had symptoms suggestive of Coccidioidomycosis but did not meet all clinical case definition criteria.³⁴

The investigations at these sites concluded that conditions that contribute to Valley Fever outbreaks are frequently performing soil-disturbing activities, being in a dust cloud or storm (Figure 3^{35,36}), working in a trench or operating heavy equipment without an enclosed cab with closed windows (Figure 4), and infrequently wearing respirators.³⁷ The study of the San Luis Obispo County solar workers revealed:³⁸

In this study, we identified that, within a construction setting in a coccidioidomycosis-endemic area, performing soil-disturbing activities and, specifically, active digging, working in a ditch or trench, and operating heavy machinery, were associated with clinical coccidioidomycosis. However, the factor most strongly associated with clinical coccidioidomycosis was frequently being in a dust cloud or storm. Even in the multivariate model, the odds of clinical coccidioidomycosis were 5.93 times greater for those who frequently versus infrequently reported being in a dust cloud or storm. The coccidioidomycosis risk of construction work in arid, endemic regions is likely partially attributable to work activities that generate dust but also to blowing dust. Therefore, in a dust storm in an endemic area, all workers regardless of job activity are at risk. We recommended that employers on these sites implement and enforce criteria for suspending work on the basis of wind and dust conditions.

³² Sondermeyer Cooksey et al. 2017, Exhibit 3, p. 1296.

³³ Wilken 2018, pp. 22-34.

³⁴ Sondermeyer Cooksey et al. 2017, Exhibit 3, p. 1302.

³⁵ P. Bartolone, Kaiser Health News, July 24, 2017, California Valley Fever Cases Highest on Record; available at <https://khn.org/news/california-valley-fever-cases-highest-on-record/>.

³⁶ David Gorn, With Climate Change, Valley Fever Spreads in California – And This Year Could Be the Worst Yet, September 25, 2018, *Health*; available at <https://calmatters.org/articles/climate-change-valley-fever-health-california/>.

³⁷ Wilken 2018, p. 34; Sondermeyer Cooksey et al. 2017, Exhibit 3, p. 1298-1299.

³⁸ Sondermeyer Cooksey et al. 2017, Exhibit 3, p. 1302.

Figure 3: Construction Conditions That Cause Valley Fever in Workers – Dust Storms



**Figure 4: Construction Conditions That Cause Valley Fever in Workers –
Trenching and Open Cabs**



The Project, for example, will involve a work force of up to 561 construction workers on a daily basis for 14 months and numerous soil-disturbing activities, including grading, excavation of foundations, cut and fill, undergrounding runs for electrical cabling,³⁹ and operating heavy construction equipment.⁴⁰

A recent Valley Fever outbreak during construction of a solar plant in Monterey County found a worksite incidence rate of 1,095 per 100,000 persons/year, compared to

³⁹ FEIS, Appendix B.

⁴⁰ FEIS, Appendix B, p. B-16/17 and Table 2-1.

the 2016 incidence rates in Monterey and five surrounding counties that ranged from 4.4 to 210.6, demonstrating the significant risk to construction workers who disturb soils containing Cocci spores.⁴¹ Cal/OSHA cited six employers over \$240,000 for exposing workers to Valley Fever at this site (California Flats Solar Project, Cholame Hills).⁴²

The disease debilitates the population and thus prevents them from working.⁴³ The longest period of disability from occupational exposure in California is to construction workers, with 62% of the reported cases resulting in over 60 days of lost work.⁴⁴ Another study estimated the average hospital stay for each (non-construction worker) case of Coccidioidomycosis at 35 days.⁴⁵

Mitigation Measure MM-BIO-1 Will Not Mitigate Valley Fever Risk

Finally, the response asserts that mitigation measure MM-BIO-1 includes a “Fugitive Dust Control Plan that would regulate dust emissions during construction and would lower any potential risk for exposure if Coccidioides were present in the soils at the Project Site.” MM-BIO-1 requires the Developer to implement the fugitive dust control measures in project design features PDF-AQ-2 and PDF-AQ-3 (Fugitive Dust Control) of the FEIS.⁴⁶ The dust control measures include:

⁴¹ Rebecca L. Law et al., Coccidioidomycosis Outbreak Among Workers Constructing a Solar Power Farm—Monterey County, California, 2016–2017; *Morbidity and Mortality Weekly Report*, v. 67, no. 33, pp. 931–934, August 24, 2018, Table 2; available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6107319/>.

⁴² California Department of Industrial Relations, News Release, Cal/OSHA Cites Six Employers Over \$240,000 for Exposing Workers to Valley Fever, November 20, 2017; available at <https://www.prnewswire.com/news-releases/calosha-cites-six-employers-over-240000-for-exposing-workers-to-valley-fever-300559637.html>.

⁴³ Frank E. Swatek, Ecology of *Coccidioides Immitis*, *Mycopathologia et Mycologia Applicata*, v. 40, no. 1–2, pp. 3–12, 1970, Exhibit 4.

⁴⁴ Schmelzer and Tabershaw, 1968, Table 4.

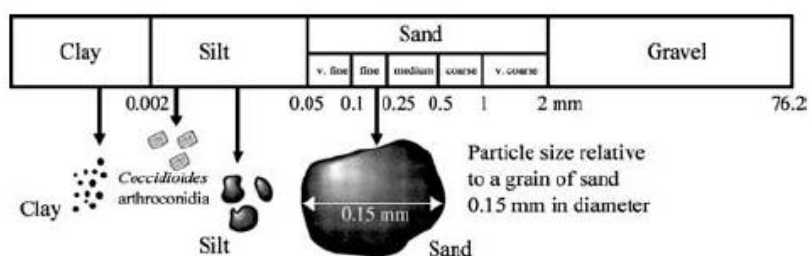
⁴⁵ Demosthenes Pappagianis and Hans Einstein, Tempest from Tehachapi Takes Toll on Coccidioides Conveyed Aloft and Afar, *Western Journal of Medicine*, v. 129, Dec. 1978, pp. 527–530; available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1238466/pdf/westjmed00256-0079.pdf>.

⁴⁶ FEIS, Appendix P, p. P-2.

Table 2: Fugitive Dust Control Program (PDF-AQ-2 and PDF-AQ-3)⁴⁷

Mitigation Measure	
PDF-AQ-2	<p>Fugitive Dust Control. The Developer or its designee shall implement the following measures to minimize fugitive dust (PM10 and PM2.5):</p> <ol style="list-style-type: none"> Water or other approved dust control non-toxic agent shall be used on the grading areas at least three times daily. Grading areas shall be stabilized as quickly as possible. Chemical stabilizer shall be applied, a gravel pad shall be installed, or the last 100 feet of internal travel path within the construction site shall be paved prior to public road entry and for all haul roads. Wheel washers shall be installed adjacent to the apron for tire inspection and washing prior to vehicle entry on public roads. Visible track-out into traveled public streets shall be removed with the use of sweepers, water trucks, or similar method within 30 minutes of occurrence. Sufficient perimeter erosion control shall be provided to prevent washout of silty material onto public roads. Unpaved construction site egress points shall be graveled to prevent track-out. Construction access points shall be wet-washed at the end of the workday if any vehicle travel on unpaved surfaces has occurred. Transported material in haul trucks shall be watered or treated. All soil disturbance and travel on unpaved surfaces shall be suspended if winds exceed 25 miles per hour. On-site stockpiles of excavated material shall be covered. A 15 mile per hour speed limit on unpaved surfaces shall be enforced. Construction traffic control plans shall route delivery and haul trucks required during construction away from sensitive receptor locations and congested intersections to the extent feasible. Construction Traffic Control plans shall be finalized and approved prior to issuance of grading permits. Construction Traffic Control Plans shall route delivery and haul trucks required during construction away from sensitive receptor locations and congested intersections to the extent feasible. Construction Traffic Control Plans shall be finalized and approved prior to issuance of grading permits.
PDF-AQ-3	<p>The following measures shall be included as part of the Project to reduce emissions associated with blasting and rock-crushing activities:</p> <ol style="list-style-type: none"> During blasting activities, the construction contractor shall implement measures to control fugitive dust, including exhaust ventilation, blasting cabinets and enclosures, vacuum blasters, drapes, water curtains, or wet blasting. Watering methods, such as water sprays and water applications, shall be implemented during blasting, rock crushing, cutting, chipping, sawing, or any activity that would release dust particles to reduce fugitive dust emissions. During rock crushing transfer and conveyance activities, material shall be watered prior to entering the crusher. Crushing activities shall not exceed an opacity limit of 20% (or Number 1 on the Ringelmann Chart) as averaged over a 3-minute period in any period of 60 consecutive minutes. A qualified opacity observer shall monitor opacity from crushing activities once every 30 days while crushers are employed on site. Water sprayers, conveyor belt enclosures, or other mechanisms shall be employed to reduce fugitive dust generated during transfer and conveyance of crush material.

These are “conventional” dust control measures that are not designed to control exposure to Valley Fever spores. It is well known that a conventional dust control plan such as required by these mitigation measures is inadequate to address potential health risks posed by exposure to Valley Fever.⁴⁸ Conventional dust control measures are not effective at controlling Valley Fever⁴⁹ because they largely focus on visible dust or larger dust particles – the PM10 fraction – not the very fine particles where the Valley Fever spores are found. Figure 5. These very small particles are not controlled by conventional construction dust control mitigation measures.

Figure 5: Size of Cocci Spores Compared to Soil Particles (in mm)

⁴⁷ FEIS, Appendix P, p. P-13.

⁴⁸ Wilken 2018.

⁴⁹ See, e.g., K. C. Cummings et al. Point-Source Outbreak of Coccidioidomycosis in Construction Workers, *Epidemiology and Infection*, v. 138, no. 4, 2010, pp. 507-511, Exhibit 5; Eileen Schneider et al., 1997, A Coccidioidomycosis Outbreak Following the Northridge, Calif, Earthquake, *JAMA*, v. 277, no. 11, 1997, p. 908 (“Primary prevention strategies (e.g., dust-control measures) for coccidioidomycosis in endemic areas have limited effectiveness.”) Exhibit 6; Wilken 2018.

While dust exposure is one of the primary risk factors for contracting Valley Fever and dust-control measures are an important defense against infection, it is essential to note that PM10 and visible dust, the targets of conventional control mitigation, such as proposed in the FEIS, are only indicators that *Coccidioides ssp.* spores may be airborne in a given area. Freshly generated dust clouds usually contain a larger proportion of the more visible coarse particles, PM10 (≤ 0.01 mm), compared to cocci spores (0.002 mm). However, these larger particles settle more rapidly, and the remaining fine respirable particles may be difficult to see and are not controlled by conventional dust control measures.

Spores of *Coccidioides ssp.* have slow settling rates in air due to their small size (0.002 mm) and low terminal velocity, and possibly also due to their buoyancy, barrel shape, and commonly attached empty hyphae cell fragments.⁵⁰ Thus spores, whose size is well below the limits of human vision, may be present in air that appears relatively clear and dust free. Such ambient airborne spores with their low settling rates can remain aloft for long periods and be carried hundreds of miles from their point of origin. Thus, implementation of conventional dust control measures, such as those proposed for this Project, will not provide sufficient protection for both on-site workers and the general public.

In response to an outbreak of Valley Fever in construction workers in 2007 at a construction site for a solar facility within San Luis Obispo County, its Public Health Department, in conjunction with the California Department of Public Health,⁵¹ developed recommendations to limit exposure to Valley Fever based on scientific information from the published literature. The recommended measures go far beyond the conventional dust control measures in the FEIS, which primarily control PM10. They include the following measures that are not required in the FEIS to mitigate construction fugitive dust emissions from the Project:

1. Reevaluate and update your Injury and Illness Prevention Program (as required by Title 8, Section 3203) and ensure safeguards to prevent Valley Fever are included.
2. Train all employees on the following issues:
 - The soils in the County may contain cocci spores;
 - Inhaling cocci spores may cause Valley Fever;

⁵⁰ Frederick S. Fisher, Mark W. Bultman, and Demosthenes Pappagianis, Operational Guidelines (version 1.0) for Geological Fieldwork in Areas Endemic for Coccidioidomycosis (Valley Fever), U.S. Geological Survey Open-File Report 00-348, 2000; available at <https://pubs.usgs.gov/of/2000/0348/>.

⁵¹ CDPH June 2013, pp. 4-6. See also Wilken et al., 2015 and Sondermeyer Cooksey et al. 2017, Exhibit 3; abstract available at <https://www.ncbi.nlm.nih.gov/pubmed/28640687>.

- How to recognize symptoms of Valley Fever; these symptoms resemble common viral infections, and may include fatigue, cough, chest pain, fever, rash, headache, and body and joint ache;
- Work with a medical professional with expertise in cocci as you develop your training program and consult information on public health department websites;
- Workers must promptly report suspected symptoms of work-related Valley Fever to a supervisor;
- Workers are entitled to receive prompt medical care if they suspect symptoms of work-related Valley Fever. Workers should inform the health care provider that they may have been exposed to cocci;
- To protect themselves, workers should use control measures as outlined here.

3. Control dust exposure:

- Consult with local Air Pollution Control District Compliance Assistance programs and with California Occupational Safety and Health Administration (“Cal/OSHA”) compliance program regarding meeting the requirements of dust control plans and for specific methods of dust control. These methods may include wetting the soil continuously while working it and ensuring that the wetting process does not raise dust or adversely affect the construction process;
- Provide high-efficiency particulate (“HEP”)-filtered, air-conditioned enclosed cabs on heavy equipment. Train workers on proper use of cabs, such as turning on air conditioning prior to using the equipment and keeping windows closed.
- Provide communication methods, such as 2-way radios, for use in enclosed cabs.
- Employees should be medically evaluated, fit-tested, and properly trained on the use of the respirators, and a full respiratory protection program in accordance with the applicable Cal/OSHA Respiratory Protection Standard (8 CCR 5144) should be in place.
- Provide National Institute for Occupational Safety and Health (NIOSH)-approved respirators for workers with a prior history of Valley Fever.
- Half-face respirators equipped with N-100 or P-100 filters should be used during digging. Employees should wear respirators when working near earth moving machinery.

- Prohibit eating and smoking at the worksite, and provide separate, clean eating areas with hand-washing facilities.
- Avoid outdoor construction operations during unusually windy conditions or in dust storms.
- Consider limiting outdoor construction during the Fall to essential jobs only, as the risk of cocci infection is higher during this season.

4. Prevent transport of cocci outside endemic areas:

- Thoroughly clean equipment, vehicles, and other items before they are moved off-site to other work locations.
- Provide workers with coveralls daily, lockers (or other systems for keeping work and street clothing and shoes separate), daily changing and showering facilities.
- Clothing should be changed after work every day, preferably at the work site.
- Train workers to recognize that cocci may be transported offsite on contaminated equipment, clothing, and shoes; alternatively, consider installing boot-washing.
- Post warnings onsite and consider limiting access to visitors, especially those without adequate training and respiratory protection.

5. Improve medical surveillance for employees:

- Employees should have prompt access to medical care, including suspected work-related illnesses and injuries.
- Work with a medical professional to develop a protocol to medically evaluate employees who have symptoms of Valley Fever.
- Consider preferentially contracting with 1-2 clinics in the area and communicate with the health care providers in those clinics to ensure that providers are aware that Valley Fever has been reported in the area. This will increase the likelihood that ill workers will receive prompt, proper and consistent medical care.
- Respirator clearance should include medical evaluation for all new employees, annual re-evaluation for changes in medical status, and annual training, and fit-testing.
- Skin testing is not recommended for evaluation of Valley Fever.⁵²

⁵² Short-term skin tests that produce results within 48 hours are now available. See Kerry Klein, NPR for Central California, New Valley Fever Skin Test Shows Promise, But Obstacles Remain, November 21, 2016; available at <http://kvpr.org/post/new-valley-fever-skin-test-shows-promise-obstacles-remain>.

- If an employee is diagnosed with Valley Fever, a physician must determine if the employee should be taken off work, when they may return to work, and what type of work activities they may perform.

In a more recent Valley Fever outbreak among solar plant construction workers in Monterey County, public health officials conducted a site visit to the solar farm to observe and interview workers and employers about work practices, dust control and use of protective equipment; review training materials; and discuss prevention strategies. The visit confirmed dust control issues, serious lapses in use of respiratory protection, insufficient *Coccidioidomycosis* employee training, and no system for tracking or reporting illness. Thus, in November 2017, the CDPH issued prevention recommendations before the start of the second construction phase. Recommendations for employers included:⁵³

(1) reducing dust exposure by ensuring ample and efficient water truck capacity to wet soil;

(2) using only heavy equipment with enclosed cabs and temperature-controlled, high efficiency particulate air-filtered air;

(3) providing clean coveralls daily to employees who disturb soil;

(4) implementing a mandatory respiratory protection program (8 CCR §5144, Respiratory Protection: <https://www.dir.ca.gov/title8/5144.html>) that specifically requires National Institute for Occupational Safety and Health-approved respirators be worn while performing or in the near vicinity of job activities that create airborne dust;

(5) developing effective Valley Fever training for all employees, including ways to reduce exposure, how to recognize symptoms, and where to seek care; and

(6) tracking and reporting of all suspected Valley Fever illnesses that occur at the worksite to the Monterey County Health Department.

The study concluded that prevention methods need to be better incorporated into the planning and monitoring of construction projects in areas with endemic *Coccidioides* (e.g., by involving public health practitioners in pre-project reviews). Specifically, the following was recommended: “Outdoor workers in these areas should be trained by employers about the potential for infection, how to limit dust exposure, how to recognize symptoms, where to seek care, and how to ask a health care provider to assess them for coccidioidomycosis. Clinicians should inquire about occupational

⁵³ Law et al., 2018.

history and should suspect coccidioidomycosis in patients who are outdoor workers in areas with endemic *Coccidioides* and who have a clinically compatible illness.”⁵⁴

Similarly, the California Department of Public Health (CDPH) recently summarized recommendations to control Valley Fever, including:⁵⁵

- Minimize soil disturbance through job design (e.g., avoid digging, reduce grading, maintain vegetation, install wiring in above-ground trays instead of below-ground trenches);
- Limit dust generation and exposure;
- Protect operators with enclosed cabs (air conditioned with HEPA air filtration, windows closed & 2-way radio for communication, wet-clean inside cabs);
- Maintain effective cab pressurization and filtration (positive pressure, tight door seals, gaskets, holes sealed up, replace clogged filters, provide cooling & heating);
- Get employees respirator-ready;
- Use respirators with N95 or P100 (HEPA) filters;
- Develop respiratory protection program (program coordinator, medical clearance, fit testing, training, written policy on when to use respirators);
- Plan to take action when dust cannot be controlled (rules for work stoppage, monitor conditions, move indoors or into HEPA-filtered A/C, don respirators quickly);
- Valley Fever prevention training (train all supervisors, employees, & subcontractors);
- Training content to include Valley fever awareness, symptoms, groups at greater risk, how to prevent exposure, what to do if you have symptoms;
- Prevent “take-home” dust (provide clean area to wash up, require change of clothing, provide boot cleaning stations, wet-clean tools and equipment); and
- Train workers on what they do if they’re sick (inform supervisors, get medical evaluation, file workers’ compensation claim).

Two other studies have developed complementary recommendations to minimize the incidence of Valley Fever. The U.S. Geological Survey (“USGS”) has

⁵⁴ Ibid.

⁵⁵ See, e.g., 8/21/18 CDPH; Wilken 2018.

developed recommendations to protect geological field workers in endemic areas.⁵⁶ An occupational study of Valley Fever in California workers also developed recommendations to protect those working and living in endemic areas.⁵⁷ These two sources identified the following additional measures:

- Evaluate soils to determine if each work location is within an endemic area.
- Implement a vigorous program of medical surveillance.
- Implement aggressive enforcement of respirator use where exposures from manual digging are involved.
- Test all potential employees for previous infection to identify the immune population and assign immune workers to operations involving known heavy exposures.
- Hire resident labor whenever available, particularly for heavy dust exposure work.
- All workers in endemic areas should use dust masks to protect against inhalation of particles as small as 0.4 microns. Mustaches or beards may prevent a mask from making an airtight seal against the face and thus should be discouraged.
- Establish a medical program, including skin tests on all new employees, retesting of susceptibles, prompt treatment of respiratory illness in susceptibles; periodic medical examination or interview to discover a history of low grade or subclinical infection, including repeated skin testing of susceptible persons.

The proposed dust control mitigation measures do not include the vast majority of these measures. The mitigation measures identified in this comment, based on actual experience during construction of solar and wind projects in endemic areas, should be required for the Project.

In addition to the above-discussed measures, I recommend the following mitigation measures to protect workers and off-site sensitive receptors:

- Continuously wet the soil before and while digging or moving the earth. Landing zones for helicopters and areas where bulldozers, graders, or skid steers operate are examples where continuously wetting the soil is necessary.

⁵⁶ Fisher et al., 2000.

⁵⁷ Schmelzer and Tabershaw, 1968, pp. 111-113.

- When digging a trench or fire line or performing other soil-disturbing tasks, position workers upwind when possible.
- Place overnight camps, especially sleeping quarters and dining halls, away from sources of dust such as roadways.
- Minimize the amount of digging by hand. Instead, use heavy equipment with the operator in an enclosed, air-conditioned, HEPA-filtered cab.

In sum, construction mitigation measures required in the FEIS are not adequate to control Valley Fever due to Project construction. Projects that have implemented similar conventional PM10 dust control measures have experienced fugitive dust issues and reported cases of Valley Fever.

For example, construction of First Solar's Antelope Valley Solar Ranch One ("AVSR1") was officially halted in April 2013 due to the company's failure to bring the facility into compliance with ambient air quality standards, despite conventional dust control measures. A dust storm in Antelope Valley on April 8, 2013 was so severe that it resulted in multiple car pileups in the sparsely populated region, as well as closure of the Antelope Valley Freeway. The company was issued four violations by the Antelope Valley Air Quality Management District. Dust from the project led to complaints of respiratory distress by local residents and concern about Valley Fever.⁵⁸

At two photovoltaic solar energy projects in San Luis Obispo County, Topaz Solar Farm and California Valley Solar Ranch, 28 construction workers contracted Valley Fever. One man was digging into the ground and inhaled dust and subsequently became ill. A blood test confirmed Valley Fever.⁵⁹

All of the above health-protective measures recommended by the San Luis Obispo County Public Health Department, Monterey County Health Department, and the California Department of Public Health are feasible for the Project and must be required in a dust control plan included in an FEIS that evaluates and mitigates the risk to construction workers, nearby residents, and passengers on public roads from contacting Valley Fever. Many of these measures have been required by the County of

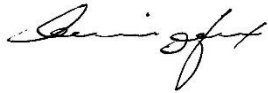
⁵⁸ Herman K. Trabish, Green Tech Media, Construction Halted at First Solar's 230 MW Antelope Valley Site, April 22, 2013, available at <http://www.greentechmedia.com/articles/read/Construction-Halted-At-First-Solars-230-MW-Antelope-Valley-Site>.

⁵⁹ Julie Cart, Los Angeles Times, 28 Solar Workers Sickened by Valley Fever in San Luis Obispo County May 01, 2013; available at <http://articles.latimes.com/2013/may/01/local/la-me-ln-valley-fever-solar-sites-20130501>.

Monterey in other EIRs.⁶⁰ They are also required in the EIR for the California High-Speed Train.⁶¹

In sum, global response VF-1 fails to address the significant Valley Fever impact to construction workers and other nearby exposed parties. The mitigation measures identified above should be required.

Sincerely,



Phyllis Fox, PhD, PE

⁶⁰ County of Monterey, California Flats Solar Project Final Environmental Impact Report, December 2014; available at: <https://www.co.monterey.ca.us/home/showdocument?id=48244>.

⁶¹ California High-Speed Rail Authority and U.S. Department of Transportation, California High-Speed Train Project Environmental Impact Report/Environmental Impact Statement, Fresno to Bakersfield, Mitigation Monitoring and Enforcement Program Amendments, September 2015.

ADDENDUM B

**Report on the
October 2020
Draft Supplemental Recirculated Environmental
Impact Report for Revisions to the Kern County Zoning
Ordinance – 2020 A, Focused on
Oil and Gas Local Permitting**

**Prepared
for
Earthjustice**

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1. INTRODUCTION

I commented on the air quality analysis contained in the Final Environmental Impact Report (FEIR) for revisions to Kern County Zoning Ordinance – 2015(C) focused on oil and gas permitting.¹ I also commented on the cumulative health risk assessment for this FEIR, which originally was released 5 days prior to the public hearing on the FEIR and was subsequently recirculated with a Draft Supplemental Recirculated Environmental Impact Report in August 2020 (Aug. DSREIR).²

In October 2020, Kern County released a revised version of the Draft Supplemental Recirculated Environmental Impact Report (Oct. DSREIR).³ In this report, I address two issues: (1) the failure of the Oct. DSREIR to evaluate public health impacts of significant construction and operational criteria pollutant emissions and (2) adequacy of the proposed mitigation for significant construction and operational air quality impacts. My analysis of these issues is presented below.

2. THE OCT. DSREIR FAILED TO EVALUTE PUBLIC HEALTH AND OTHER IMPACTS OF SIGNIFICANT CRITERIA POLLUTANT EMISSIONS

Emissions of the criteria pollutants NO_x, VOC, CO, SO_x, PM₁₀, and PM_{2.5} result in ambient concentrations of these pollutants that cause significant public health and other impacts when ambient air quality standards are exceeded. Construction and operational emissions are highly significant, which should have triggered ambient air quality modeling to assess impacts on sensitive receptors. Further, while well construction and well operation may occur in different geographic locations, their emissions can combine in the atmosphere, affecting the same sensitive receptors.

The definition of sensitive receptors in the Oct. DSREIR is too narrow to include all sensitive receptors. It should be expanded to include any location where individuals are located with compromised immune systems or other health conditions affected by air pollution such as asthma, cardiovascular disease, lung cancer, susceptibility to infection, wheezing, coughing and shortness of breath, among many others.⁴

¹ Phyllis Fox, Report on Final Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C), Focused on Oil and Gas Local Permitting, November 6, 2015 (Fox FEIR Comments), Administrative Record (“AR”) Bates 155605-155686.

² Letter from Phyllis Fox to Rachael Hooper, Shute, Mihaly & Weinberger LLP, September 11, 2020.

³ Kern County Planning and Natural Resource Department, Draft Supplemental Recirculated Environmental Impact Report (October 2020), Revisions to Title 19-Kern County Zoning Ordinance – (2020A), Focused on Oil and Gas Local Permitting, SCH# 2013081079, October 2020; <https://kernplanning.com/environmental-doc/oil-and-gas-sreir/>.

⁴ Herein, as discussed more in Comment 2.4.1 below, the term “sensitive receptor” refers to people that have an increased sensitivity to air pollution or environmental contaminants and places where such

These impacts cannot be identified and mitigated without converting construction and operational emissions reported in the Oct. DSREIR in pounds per day (lb/day) and tons per year (ton/yr) into ambient concentrations in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) that people, animals, and plants “breathe.” The concentrations in the atmosphere are what people, animals, and plants are exposed to and thus what causes the impacts. The only way to evaluate these impacts is by using air dispersion modeling to convert emissions into ambient concentrations that sensitive receptors will be exposed to. The Oct. DSREIR not only failed to conduct any air quality modeling, it failed to even recognize the potential for the overlap of impacts from well construction in one location with well operation in another location.

Even though the emissions of all criteria pollutants from both construction⁵ (Table 1) and operation (Table 2) greatly exceed significance thresholds expressed in lb/day and ton/yr, the Oct. DSREIR did not perform any criteria pollutant modeling to evaluate public health and other impacts that depend on ambient air quality where sensitive receptors are located. Instead, it argues:⁶

Ambient air quality modeling results for NO₂, SO₂, and CO, PM₁₀, and PM_{2.5} are sometimes warranted for large stationary sources near potentially sensitive receptors. Since the Project consists of Zoning Code Amendments that will regulate a broad range of oil and gas activities located throughout the Project Area, and excludes the types of large stationary sources (e.g., new and expanded cogeneration plants) that could warrant ambient air quality modelling, this modelling was not required to evaluate the potential significance of Project-related air emissions. TAC modelling to assess health risks was completed as described below, and the toxicity of criteria pollutants is discussed above.

This is wrong. First, TAC (Toxic Air Contaminant) modeling addresses toxic air contaminants, also known as hazardous air pollutants (e.g., HAPs such as benzene, hydrogen sulfide), not criteria pollutants (e.g., NO_x, SO_x, CO, VOC, PM₁₀, PM_{2.5}). Thus, it is not a substitute for ambient air quality modelling of criteria pollutants.

individuals may be present. The Oct. DSREIR defines sensitive receptors as including “residential communities, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Sensitive individuals with compromised immune systems, such as children and the elderly, may be exposed to emissions from construction and operation of the Project.” Oct. DSREIR, p. 4.3-30. The OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines, Section 4.6.3, February 2015 defines “sensitive receptor locations” as including “...young children and chronically ill individuals.”; <https://oehha.ca.gov/media/downloads/crn/2015guidancemanual.pdf>. The proposed Ordinance defines the term more narrowly to refer to dwelling units, buildings or structures used for public assembly, churches, institutions, and hospitals. Oct. DSREIR, Chapter 3, Attachment A, p. 5 (proposed section 19.98.060).

⁵ Oct. DSREIR, Table 4.3-12 to 4.3-19. Table 4.3-19, for example, shows that total well construction NO_x emissions in 2035 exceed significance thresholds as follows: NO_x: 4,221 ton/yr compared to 10 ton/yr; VOC: 1,491 ton/yr compared to 10 ton/yr; CO: 9,174 ton/yr compared to 100 ton/yr; PM₁₀: 431 ton/yr compared to 15 ton/yr; PM_{2.5} compared to 147 ton/yr.

⁶ Oct. DSREIR, p. 4.3-122, pdf 124.

Criteria pollutant emissions also result in significant public health as well as biological and other impacts. The Oct. DSREIR contains a generic discussion of the effects of these pollutants unrelated to the Project.⁷ However, the Oct. DSREIR failed to estimate the increase in these pollutants, relative to baseline concentrations to evaluate the Project's public health and other impacts, thus rendering the DSREIR inadequate as an informational document under CEQA.

Second, modeling is routinely performed for sources that are not "large stationary sources." The Oct. DSREIR fails to define the term, "large stationary source," or provide any support for its assertion that air quality modeling is only performed for "large stationary sources." My experience working in the oil, gas, refining, and other industries with numerous "large stationary sources" indicates that the emissions from this Project's construction and operation exceed those from many "large stationary sources" unless aggressively mitigated with best available control technology (BACT) or lowest achievable emission rate (LAER) controls.

The key consideration in deciding if modeling is required is the magnitude of the emissions, the ambient air quality in the impacted area, and presence of sensitive receptors. In this case, the construction (Table 1) and operational emissions (Table 2) exceed significance thresholds by huge amounts, far more than emissions from conventional "large stationary sources," which typically have pollution controls to reduce the emissions. Further, the Oct. DSREIR failed to identify a single "large stationary source" as a benchmark for its decision. Total annual well construction emissions, for example, exceed the NO_x significance threshold by a factor of 422, VOCs by a factor of 149, and PM₁₀ by a factor of 29.⁸ Further, the San Joaquin Valley Air Basin, where the Project will be located, has some of the worst air pollution in the United States. This alone warrants ambient air quality modeling. See Comment 2.3.

Further, in *Sierra Club v. County of Fresno*, known as the "Friant Ranch Decision," the California Supreme Court affirmed CEQA's mandate to protect public health and safety by holding that an EIR fails as an informational document under CEQA when it fails to correlate a project's significant air quality impacts with potential human health impacts or explain why such further evaluation is infeasible.⁹ An EIR must make a "reasonable effort to substantively connect a project's air quality impacts to likely health consequences."¹⁰

⁷ Oct. DSREIR, pp. 4.3-11 to 4.3-18.

⁸ Oct. DSREIR, Table 4.3-19.

⁹ *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 (referred to as "the Friant Ranch Decision").

¹⁰ Cal. Pub. Res. Code § 21005, 21168.5; Cal. Code Regs. tit. 14, § 15151.

The Oct. DSREIR failed to model the ambient air pollutant concentrations resulting from the Project's criteria pollutant emissions and failed to connect them with likely health consequences. Ambient concentrations of criteria pollutants are essential to determine public health impacts. The Oct. DSREIR also failed to disclose the resulting public health impacts from increases in ambient concentrations of ozone, PM_{2.5}, and other criteria pollutants due to highly significant increases in construction and operational emissions in Tables 1 and 2, both individually and cumulatively.

Project cumulative emissions are particularly important here because emissions will occur from the simultaneous construction of new wells and the operation of existing wells constructed under this Project within the San Joaquin Valley Air Basin. Reviewers of the Oct. DSREIR cannot convert emissions expressed in lb/day and ton/yr into ambient concentrations that they would be exposed to from simultaneous construction of one set of wells and operation of other sets of wells in the same air basin.

The Oct. DSREIR also failed to explain why evaluation of air quality impacts of air pollutant emissions is infeasible. In fact, evaluation of air quality impacts using dispersion modeling is feasible and routinely conducted in CEQA documents.

2.1. Increases in Construction Emissions of NO_x, VOC, CO, SO_x, PM₁₀, and PM_{2.5} Are Highly Significant and Unmitigated

The Oct. DSREIR concluded that since total annual construction emissions, summarized in these comments in Table 1¹¹ exceed the SJVAPCD construction emission significance thresholds and as they would not be offset, they would result in "a cumulatively considerable net increase in criteria pollutants for which the Project region is nonattainment and, therefore, the construction impacts would be significant." The Oct. DSEIR also concluded that the impacts would be significant and unavoidable after mitigation.¹²

¹¹ Oct. DSREIR, Summary of Construction Emissions, pp. 4.3-109/110, pdf 111-112.

¹² Oct. DSREIR, p. 4.3-109, pdf 111 and p. 4.3-160, pdf 162.

Table 1: Total Annual Estimated Emissions from Well Construction¹³

Year	Subarea	Criteria Emissions (tons per year)					
		NO _x	VOC	CO	SO _x	PM ₁₀	PM _{2.5}
2012	Western	7,598.80	1,149.70	5,166.48	7.46	473.13	307.64
	Central	561.81	160.23	427.96	0.52	30.46	19.35
	Eastern	1,862.63	122.33	1,332.48	1.71	119.78	77.24
	TOTALS	10,023.24	1,432.26	6,926.91	9.70	623.37	404.22
2035	Western	2,446.44	939.60	5,387.69	8.32	269.95	90.27
	Central	846.88	439.69	1,300.10	1.60	54.36	20.98
	Eastern	927.81	111.75	2,486.35	3.30	106.54	35.61
	TOTALS	4,221.13	1,491.05	9,174.14	13.22	430.85	146.85
SJVAPCD Construction Emissions Threshold		10	10	100	27	15	15

These significant emissions, coupled with the fact that air pollution in the San Joaquin Valley Air Basin where the Project is located is one of the worst in the United States (Comment 2.3), should have triggered ambient air quality modeling of both construction and operational (Comments 2.1-2.3) emissions as well as simultaneous construction and operation to identify the locations where the ambient air quality impacts would occur so that mitigation could be identified in the affected locations. The Oct. DSREIR proposes the use of Development Mitigation Contracts (DMCs) and Voluntary Emission Reduction Agreements (VERAs)¹⁴ under the “Oil and Gas Emission Reduction Agreement” (OG-ERA) entered into on August 18, 2016 under MM 4.3-8.¹⁵ The OG-ERA agreement addresses significant construction and operational emissions of NO_x, VOCs, and PM.¹⁶

However, as discussed in Comment 2.1, the Oct. DSREIR did not include any ambient air quality modeling of criteria pollutants, which is essential to locate impacted areas where DMCs and VERAs must be implemented to mitigate impacts under MM 4.3-8. While DMCs and VERAs are possible under the OG-ERA, I am not aware of any that have been developed pursuant to the OG-ERA and none are cited in the Oct. DSREIR.¹⁷ Instead, fees have been paid to the SJVAPCD in lieu of actual on-the-ground mitigation at the point of impact. Fees do not mitigate significant air quality impacts

¹³ Oct. DSREIR, Table 4.3-19, p. 4.3-109, pdf 111.

¹⁴ Oct. DSREIR, p. 4.3-130/131, pdf 132-133.

¹⁵ Oct. DSREIR, p. 4.3-130 (the Oil and Gas Emission Reduction Agreement or OG-ERA).

¹⁶ Oct. DSREIR, p. 4.3-130, pdf 132.

¹⁷ The Oct. DSREIR “describes what has occurred under the OG-ERA since 2015.” Oct. DSREIR, p. 4.3-136, pdf 138. The Oct. DSREIR discusses fee amounts collected by the County and spent or encumbered by the SJVAPCD annually but makes no mention of any emissions reduction projects undertaken by operators directly pursuant to the OG-ERA. Oct. DSREIR, pp. 4.3-136 to 4.3-141, pdf 138 to 143.

unless they are used to implement DMCs/VERAs at the point of impact. Thus, the Oct. DSREIR fails as an informational document under CEQA.

2.2. Increases in Operational Emissions of NO_x, VOC, CO, SO_x, PM₁₀, and PM_{2.5} Are Highly Significant

The Oct. DSREIR estimated total operational emissions in 2012 (baseline) and in 2035 from: (1) oil and gas production facilities that are stationary permitted sources;¹⁸ (2) emissions of fugitive VOCs;¹⁹ (3) emissions from routine business travel;²⁰ (3) emissions from routine well operations;²¹ (4) emissions from annual facility inspections;²² (5) emissions from routine well maintenance;²³ and (6) emissions from mobile sources.²⁴ However, the Oct. DSREIR failed to use this information to estimate the total change in emissions relative to the 2012 baseline due to the Project and failed to compare the resulting total increase in emissions from all Project sources with SJVAPCD significance thresholds, leaving that task to reviewers, thus failing as an informational document under CEQA.

The Oct. DSREIR also failed to convert these estimated emissions into ambient concentrations to evaluate public health and other impacts of criteria pollutant emissions, specifically stating that air quality modeling was not required to evaluate potential impacts because the Project “excludes the types of large stationary sources (e.g., new and expanded cogeneration plants) that could warrant ambient air quality modeling...”²⁵ However, this is incorrect. Air quality modeling is not limited to large stationary sources, but rather to emissions from any source(s) that exceed the significance thresholds. Thus, the Oct. DSREIR fails as an informational document under CEQA.

I summarized the operational emissions reported in Oct. DSREIR Tables 4.3-20 to 4.3-26 and compared them to SJVAPCD significance thresholds. My analysis is summarized in Table 2, which indicates that NO_x, VOC, CO, SO_x, PM₁₀, and PM_{2.5}

¹⁸ Oct. DSREIR, Table 4.3-20, pdf 114-115.

¹⁹ Oct. DSREIR, Table 4.3-21, pdf 116.

²⁰ Oct. DSREIR, Table 4.3-22, pdf 118.

²¹ Oct. DSREIR, Table 4.3-23, pdf 120.

²² Oct. DSREIR, Table 4.3-24, pdf 121.

²³ Oct. DSREIR, Table 4.3-25, pdf 122.

²⁴ Oct. DSREIR, Table 4.3-26, pdf 123.

²⁵ Oct. DSREIR, p. 4.3-122.

emissions are highly significant based on the emissions as estimated in the Oct. DSREIR.

**Table 2: Net Increase in Project Operational Emissions (ton/yr)
in 2035 Relative to 2012 Baseline**

Source	NO _x	VOC	CO	SO _x	PM ₁₀	PM _{2.5}
Stationary Sources	1,025	1,756	1,610	183	476	476
Fugitive VOCs		699				
Routine Business Travel	-65	-15	-137	0.3	6.4	1.4
Routine Well Operations	34	804	-120	0.2	183	18
Annual Facility Inspections	-0.2	-0.3	-2.7	0	103	10
Routine Well Maintenance	-760	-61	905	1.25	-12	-67
Total	234	3,183	2,255	185	756	438
Significance Threshold ²⁶	10	10	100	27	15	15
Significant?	Yes	Yes	Yes	Yes	Yes	Yes

The Oct. DSREIR drew a similar conclusion, without showing any of the supporting calculations and based it on the wrong significance thresholds – construction rather than operation.²⁷

In summary, emissions from permitted stationary sources, permit-exempt equipment, and mobile sources at a Project level would result in emissions levels that would exceed the SJVAPCD Operational Emissions Threshold. Only the permitted stationary sources would be required to be offset because it is a condition of SJVAPCD air permit. Since the remaining emissions would exceed the SJVAPCD Construction Emissions Threshold and would not be offset, operational emission would result in considerable net increase of the criteria pollutants NO_x, VOC, CO, PM₁₀, and PM_{2.5} and would be a significant impact.

2.3. Health and Biological Impacts of Significant Increases in NO_x, VOCs, PM₁₀, and PM_{2.5} Emissions Were Not Evaluated

The ambient air in the San Joaquin Valley Air Basin where the Project is located currently violates federal and/or state ambient air quality standards on ozone, PM₁₀,

²⁶ SJVAPCD, Air Quality Thresholds of Significance – Criteria Pollutants, March 19, 2015; <http://www.valleyair.org/transportation/0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf>.

²⁷ Oct. DSREIR, p. 4.3-122, pdf 124.

and PM2.5 established to protect public health.²⁸ The Clean Air Act, for example, directs the EPA to establish air quality criteria for those pollutants with “emissions of which, in his judgment, cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare.”²⁹ Section 109(b)(1) defines primary standards as ones “the attainment and maintenance of which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect public health.”³⁰ Under section 109(b)(2), a secondary standard must “specify a level of air quality the attainment and maintenance of which, in the judgment of the Administrator, based on such criteria, is requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of [the] pollutant in the ambient air.”³¹ The Oct. DSREIR summarized the standards developed in response to these rules,³² but failed to determine whether the Project will comply with them.

Even though air pollution in the San Joaquin Valley Air Basin where the Project is located is one of the worst in the United States, the Oct. DSREIR failed to disclose this fact or model the emissions summarized in Tables 1 and 2. Modeling is required to determine ambient air quality concentrations, which are required to evaluate air quality, public health, and biological impacts from Project emissions. The American Lung Association (ALA), for example, has ranked ozone and particulate matter ambient concentrations in the United States as follows:³³

²⁸ Oct. DSREIR, Table 4.3-2, pdf 8-9.

²⁹ 42 U.S.C. § 7408(a)(2).

³⁰ The legislative history of Section 109 indicates that a primary standard is to be set at “the maximum permissible ambient air level . . . which will protect the health of any [sensitive] group of the population,” and that for this purpose “reference should be made to a representative sample of persons comprising the sensitive group rather than to a single person in such a group.” S. Rep. No. 91-1196, 91st Cong., 2d Sess. 10 (1970).

³¹ Under CAA Section 302(h) (42 U.S.C. § 7602(h)), effects on welfare include, but are not limited to, “effects on soils, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being.”

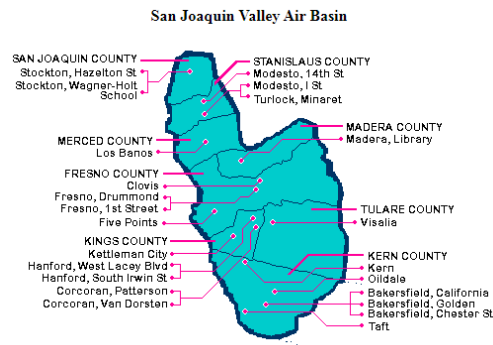
³² Oct. DSREIR, Table 4.3-1.

³³ American Lung Association (ALA), Most Polluted Cities; <https://www.stateoftheair.org/city-rankings/most-polluted-cities.html>.

Figure 1: Most Polluted Cities in the United States for Ozone and Particulate Matter³⁴

By Ozone	By Year Round Particle Pollution	By Short-Term Particle Pollution
#1: Los Angeles-Long Beach, CA	#1: Bakersfield, CA	#1: Fresno-Madera-Hanford, CA
#2: Visalia, CA	#2: Fresno-Madera-Hanford, CA	#2: Bakersfield, CA
#3: Bakersfield, CA	#3: Visalia, CA	#3: San Jose-San Francisco-Oakland, CA
#4: Fresno-Madera-Hanford, CA	#4: Los Angeles-Long Beach, CA	#4: Fairbanks, AK
		#5: Yakima, WA

Bakersfield and Fresno-Madera-Hanford are in the San Joaquin Valley Air Basin (Figure 2) and would be affected by the Project. In fact, Bakersfield, the largest city in Kern County, the location of the Project, will be surrounded by new wells developed under this Project.³⁵

Figure 2: San Joaquin Valley Air Basin³⁶

2.4. Emissions of Ozone

The SJVAPCD, where the Project is located, is in “severe” nonattainment with the state one-hour ozone standard and in “extreme” nonattainment with the federal 8-hour ozone standard.³⁷ Many days in Kern County, where the Project is located, exceed the 1-hour and 8-hour ozone standards.³⁸

³⁴ Ibid.

³⁵ Map of Population by County Subdivision in Kern County; <https://statisticalatlas.com/county/California/Kern-County/Population>.

³⁶ CARB, San Joaquin Valley Air Basin PM10; https://ww3.arb.ca.gov/aqd/oldpdm10_jsa/bsn2sjv.htm.

³⁷ SJVAPCD, Ambient Air Quality Standards & Valley Attainment Status; <https://valleyair.org/aqinfo/attainment.htm>.

³⁸ Oct. DSREIR, Table 4.3-3. See also Union of Concerned Scientists, Clearing the Air in the San Joaquin Valley, p. 8, October 2004; <http://www.kirschfoundation.org/care/documents/centralvalleyfinalnewp17.pdf>.

2.4.1. Public Health Impacts

Project operation will emit 234 ton/yr of NO_x and 3,183 ton/yr of VOC. Table 2. These emissions will overlap with construction emissions discussed above, as some wells will be constructed while others are operating. NO_x and ROG are converted into ozone in the atmosphere and thus are known as ozone precursors.

Reactive organic gases (ROGs) are a subset of VOCs that include all VOCs except those exempted by federal law.³⁹ For all practical purposes, the terms ROG and VOC are interchangeable.⁴⁰ The Oct. DSREIR failed to disclose whether emissions reported as VOCs in various tables are “ROG,” or whether they exclude exempt VOCs. The Oct. DSREIR uses the SJVAPCD significance threshold for ROG (10 ton/day for both construction and operational emissions),⁴¹ while all emission tables report VOCs but compare them to the SJVAPCD’s significance threshold for ROG. Tables 4.3-15, 4.3-16, and 4.3-18 report emissions as “VOC” but the footnotes to these tables do not include VOCs, but rather only “ROG = reactive organic gases.” Elsewhere, a footnote to Table 4.3-21 states: “The SJVAPCD threshold is set for Reactive Organic Gases (ROG). The Kern County California Environmental Quality Act Implementation Document (June 2004) states the equivalence of ROG and VOC.” Thus, in these comments, I assume VOCs = ROG, which is a commonly used assumption.

The significance thresholds for both NO_x and VOCs for both construction and operation are 10 ton/yr. Thus, construction emissions exceed the NO_x significance threshold by a factor of 422 and the VOC significance threshold by a factor of 149. In addition, operational emissions of NO_x exceed the significance threshold by a factor of 23 and the VOC significance threshold by a factor of 318. Construction of new wells and operation of existing wells will occur simultaneously, resulting in much greater emissions than construction or operation considered in isolation, as analyzed in the Oct. DSREIR.

While some of the NO_x and VOC emissions would be offset (from new permitted stationary sources) under SJVAPCD rules,⁴² and the balance purportedly

³⁹ SJVAPCD Rule 1020, Section 3.53 and U.S. EPA, Ground-level Ozone Pollution, Complete List of VOC Exemption Rules; <https://www.epa.gov/ground-level-ozone-pollution/complete-list-voc-exemption-rules>.

⁴⁰ SJVAPCD, 2016 Ozone Plan for 2008 8-Hour Ozone Standard, Adopted June 16, 2016, p. 22; http://valleyair.org/Air_Quality_Plans/Ozone-Plan-2016/Adopted-Plan.pdf.

⁴¹ Oct. DSREIR, p. 4.3-8, 4.3-94, Table 4.3-10; 1 SJVAPCD, Air Quality Significance Thresholds of Significance – Criteria Pollutants; <http://www.valleyair.org/transportation/0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf>.

⁴² Oct. DSREIR, p. 4.3-72.

would be offset pursuant to the OG-ERA entered into on August 18, 2016 under MM 4.3-8,⁴³ these are not valid mitigation under CEQA unless they mitigate impacts at the same time and place as the Project's impacts. See Comments 2.4 and 3. The Oct. DSREIR does not propose that offsets or OG-ERA projects (i.e., projects funded with Mitigation Measure 4.3-8 fees or instituted by individual operators) mitigate impacts at the place where the ambient air quality impact occurs. As the Oct. DSREIR did not perform any air quality modeling for either Project construction or operation to determine where the impacts occur, it is impossible to select offsets or OG-ERA projects that will mitigate the impacts where the impacts occur.

Thus, significant public health impacts from ambient ozone concentrations can be expected due to increases in VOC and NO_x emissions from the Project in an air basin that currently violates air quality standards on ozone. Further, a recent study has demonstrated air pollutants, especially NO_x, may enhance population susceptibility to death from COVID-19.⁴⁴

The Oct. DSREIR failed to disclose or estimate the public health impacts from increases in ambient ozone concentrations due to increases in Project emissions of ozone precursors. The Oct. DSREIR also failed to disclose or estimate the public health impacts from significant increases in other pollutants from Project operation summarized in Table 2, or from Project construction summarized in Table 1.

Ozone, the main component of smog, is formed in the atmosphere from precursor pollutants rather than being directly emitted. Ozone forms as a result of VOCs and NO_x reacting in the presence of sunlight.⁴⁵ Table 1 indicates that Project construction would emit highly significant amounts of NO_x and VOCs. Table 2 indicates that Project operation would also emit highly significant amounts of NO_x and VOC.

Ozone damages lung tissue and reduces lung function, affecting people with impaired respiratory systems as well as healthy children and adults, especially among people of color and those living in poverty.⁴⁶ The Oct. DSREIR explained that "high concentrations of ground-level ozone can adversely affect the human respiratory

⁴³ Oct. DSREIR, p. 4.3-130 (the Oil and Gas Emission Reduction Agreement or OG-ERA).

⁴⁴ Donghai Liang and others, Urban Air Pollution May Enhance COVID-19 Case-Fatality and Mortality Rates in the United States, *The Innovation*, vol. 1, 100047, November 25, 2020; <https://www.cell.com/action/showPdf?pii=S2666-6758%2820%2930050-3>.

⁴⁵ Oct. DSREIR, p. 4.3-11.

⁴⁶ U.S. EPA, Ground-level Ozone Pollution; <https://www.epa.gov/ground-level-ozone-pollution/ground-level-ozone-basics>.

system” and aggravate many respiratory ailments as well as cardiovascular disease⁴⁷ and damage natural ecosystems.⁴⁸ However, the Oct. DSREIR did not evaluate the impact of ground-level ozone from the Project’s VOC and NOx emissions on nearby sensitive receptors.

The significant increase in Project VOC emissions, 3,183 ton/yr compared to a significance threshold of 10 ton/yr, combined with the significant increase in NOx emissions, 234 ton/yr compared to a significance threshold of 10 ton/yr (Table 2), indicates that Project VOC emissions will aggravate existing violations of ambient air quality standards on ozone which were established to protect public health, resulting in significant public health impacts from ozone in surrounding communities, including Bakersfield, Fresno, Madera, Visalia, and Hanford.

The Oct. DSREIR made no attempt to quantify the impact of either construction or operational ozone-precursor emissions (NOx and VOCs) on public health in the San Joaquin Valley Air Basin. Instead, it proposes mitigation measure MM 4.3-8 to reduce emissions to net zero. However, unless the OG-ERA adopted as mitigation under MM 4.3-8 reduces ozone concentrations at the impacted locations, OG-ERA projects will not mitigate significant impacts. As no ambient air quality modeling was performed to determine the magnitude and location of the on-the-ground impacts, and the OG-ERA lacks any requirement that pollution-reducing projects be located in impacted locations, there is no evidence in the record to demonstrate that MM 4.3-8 will mitigate significant ozone and other air quality impacts. Comment 2.4.1. The OG-ERA only directs that mitigation projects be selected on the basis of cost effectiveness, not to mitigate significant air quality impacts.

Kern County, in the San Joaquin Valley Air Basin where the Project is located, is ranked as the fifth most ozone-polluted county in the entire United States.⁴⁹ Four groups of people are especially vulnerable to the effects of breathing ozone: (1) children and teens; (2) anyone 65 and older; (3) people with existing lung diseases, such as asthma and chronic obstructive pulmonary disease (also known as COPD, which includes emphysema and chronic bronchitis); and (4) people who work or exercise outdoors.⁵⁰ A large number of sensitive receptors exist in Kern County, where the wells will be drilled. About 43% of the population of Kern County (900,202) resides in

⁴⁷ Oct. DSREIR, p. 4.3-11.

⁴⁸ Oct. DSREIR, p. 4.3-11.

⁴⁹ American Lung Association, State of the Air, 2020 (ALA 2020), p. 25; <https://www.stateoftheair.org/assets/SOTA-2020.pdf>.

⁵⁰ American Lung Association, Who Is At Risk from Breathing Ozone?; <https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/ozone>.

Bakersfield (384,145),⁵¹ where there are numerous sensitive receptors. The American Lung Association reports that Kern County has the following number of sensitive receptors:⁵²

- 259,180 under 18;
- 98,347 that are 65 and over;
- 16,001 with pediatric asthma;
- 53,894 with adult asthma;
- 27,503 with COPD;
- 39,003 with cardiovascular disease;
- 596,328 people of color; and
- 177,021 living in poverty.

Further, a major study found evidence that people with lung cancer faced greater risk from ozone and other outdoor air pollutants than others. The 2016 study tracked the air pollution levels from 1988 to 2011 experienced by more than 350,000 cancer patients in California. The researchers found that ozone and other air pollutants shortened their survival.⁵³ Numerous studies, cited in ALA 2020, document the serious public health impacts of ozone. Thus, it is critical that public health impacts from the huge increases in ozone precursors that will result from this Project be analyzed and fully mitigated. The emissions purportedly are mitigated using offsets and OG-ERA projects. Comment 2.4.1. However, there is no evidence in the record that their air quality impacts will be mitigated because there is no requirement that offsets or OG-ERA projects be located such that they will reduce ambient air quality impacts caused by construction and operational emissions at the location where the ambient air quality impacts occur.

2.4.2. Biological Impacts

High levels of ozone also have significant biological impacts that were not disclosed in the Oct. DSREIR. Ozone causes considerable damage to birds and plants, including agricultural crops and plants in natural ecosystems.

Ozone is a powerful oxidant that can cause direct, irreversible damage to birds' lungs. Long-term exposure can lead to inflammation, ruptured blood vessels, and lung

⁵¹ U.S. Census, Kern County, California; Bakersfield city, California;
<https://www.census.gov/quickfacts/kerncountycalifornia>.

⁵² ALA 2020, p. 22.

⁵³ S. P. Eckel and others, Air Pollution Affects Lung Cancer Survival, *Thorax*, v. 71, 2016, pp. 891-898;
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5400105/>.

failure.⁵⁴ Ozone also indirectly impacts birds via changes to habitat conditions, food supplies, and/or species interactions.⁵⁵

Elevated ozone also has significant impacts on plants. Ozone damages plants by entering leaf openings called stomata, oxidizing plant tissue during respiration. This damages the plant leaves and causes reduced survival.⁵⁶ It also reduces primary productivity and inhibits growth rate and biomass of plants, especially deciduous trees. It also reduces plant species richness and community composition, chemically impedes plant-pollinator interactions, and changes foliar quality and content of nitrogen. Ozone also increases plant susceptibility to damage and disease, impacts soil microbial communities, and increases secondary (defensive) plant compounds to reduce herbivory by insects.⁵⁷

The San Joaquin Valley, where the Project is located, is an important agricultural region. Kern County, for example, grows over 80% of the total national production of carrots. Other important vegetable crops grown in the county include potatoes, lettuce, garlic, onions, tomatoes, bell peppers, and watermelons.⁵⁸ A March 2020 study concluded that the poor ozone air quality in the San Joaquin Air Basin costs farmers about \$1 billion annually in fruit and nut productivity.⁵⁹

The Oct. DSREIR failed to disclose any of these impacts of the significant increase in construction (Table 1) and operational (Table 2) ozone precursors (NO_x and VOC) emissions that would be caused by the Project. Thus, the Oct. DSREIR fails as an informational document under CEQA.

⁵⁴ Olivia V. Sanderfoot and Tracey Holloway, Air Pollution Impacts on Avian Species Via Inhalation Exposure and Associated Outcomes, *Environmental Research Letters*, v. 12, 2017; <https://iopscience.iop.org/article/10.1088/1748-9326/aa8051/pdf>; see also: Kenneth Quin, Birds Suffer from Air Pollution, Just Like We Do, July 23, 2015; <https://ca.audubon.org/news/birds-suffer-air-pollution-just-we-do#:~:text=Direct%20Impacts%20on%20Birds,blood%20vessels%2C%20and%20lung%20failure>.

⁵⁵ Yuanning Liang and others, Conservation Cobenefits from Air Pollution Regulations: Evidence from Birds, PNAS Latest Articles, National Academy of Sciences, 2020; <https://www.pnas.org/content/early/2020/11/23/2013568117>.

⁵⁶ National Park Service, Ozone Effects on Plants; <https://www.nps.gov/subjects/air/nature-ozone.htm#:~:text=Ozone%20causes%20considerable%20damage%20to,leaves%20and%20causes%20reduced%20survival>.

⁵⁷ Ibid.

⁵⁸ University of California Cooperative Extension, Kern County Overview; https://vric.ucdavis.edu/virtual_tour/kern.htm#:~:text=Kern%20County%20Overview&text=Kern%20County%20is%20the%20leading,%2C%20bell%20peppers%2C%20and%20watermelons.

⁵⁹ Chaopeng Hong and others, Impacts of Ozone and Climate Change on Yields of Perennial Crops in California, *Nature Food*, vol. 1, pp. 166-172, 2020; <https://www.nature.com/articles/s43016-020-0043-8>

2.5. Emissions of Particulate Matter (PM10, PM2.5)

The SJVAPCD also is in nonattainment with the state PM10 and PM2.5 standards and the federal PM2.5 standard.⁶⁰ Thus, significant public health impacts can be expected due to highly significant increases in PM2.5 and PM10 emissions from Project construction and operation. Tables 1 and 2. Further, additional PM2.5, referred to as “secondary PM2.5”, is formed in the atmosphere by photochemical oxidation reactions of precursor gases including SOx, NOx, and VOCs.⁶¹ This secondary PM2.5 is not included in Tables 1 and 2. The Oct. DSREIR failed to disclose the public health impacts from increases in PM2.5 and PM10 emissions.

Table 1 indicates that Project construction will increase PM10 emissions in 2035 by 431 ton/yr, compared to a significance threshold of 15 ton/yr, or a factor of 29 times higher than the significance threshold. Table 1 also indicates that Project construction will increase PM2.5 emissions by 147 ton/yr, compared to a significance threshold of 15 ton/yr, or a factor of 10 times higher than the significance thresholds.

Table 2 indicates that Project operation will increase PM10 emissions by 756 ton/yr, compared to a significance threshold of 15 ton/yr, or a factor of 50 times higher than the significance threshold. Table 2 also indicates that Project operation will increase PM2.5 emissions by 438 ton/yr, compared to a significance threshold of 15 ton/yr, or a factor of 29 times higher than the significance threshold.

These highly significant emissions will increase ambient concentrations of PM2.5 and PM10, which currently exceed state and federal ambient air quality standards in the San Joaquin Valley Air Basin. As these standards were set to protect public health, significant public health impacts can be expected in Kern County and other adjacent areas. The Oct. DSREIR failed to disclose the public health impacts from increases in ambient concentrations of PM2.5 and PM10 due to increases in PM2.5 and PM10 emissions, thus failing as an informational document under CEQA.

Kern County, where the Project is located, is ranked by the ALA as the third most polluted county for short-term particle pollution (24-hour PM2.5) in the United States. The ALA reports that the number of sensitive receptors in Kern County who would be affected by PM2.5 emissions include:⁶²

⁶⁰ SJVAPCD, Ambient Air Quality Standards & Valley Attainment Status; <https://valleyair.org/aqinfo/attainment.htm>.

⁶¹ U.S. EPA, Policy Assessment for the Review of the National Ambient Air Quality Standards for Particulate Matter, External Review Draft, p. 2-9, pdf 37; https://www.epa.gov/sites/production/files/2019-09/documents/draft_policy_assessment_for_pm_naaqs_09-05-2019.pdf.

⁶² ALA 2020, p. 23.

- 259,180 under 18;
- 98,347 that are 65 and over;
- 16,001 with pediatric asthma;
- 53,894 with adult asthma;
- 27,503 with COPD;
- 348 with lung cancer
- 39,003 with CV disease;
- 208,055 who ever smoked;
- 596,328 people of color; and
- 177,021 living in poverty.

Kern County is ranked by the ALA as the most polluted county for year-round particle pollution (annual PM_{2.5}) and as the third most polluted county for short-term particle pollution in the entire United States, with the same number of sensitive receptors affected as disclosed *supra* for short-term particle pollution (24-hour PM_{2.5}).⁶³

Bakersfield, the largest city in Kern County, is ranked by the ALA as the second most-polluted city in the entire United States for short-term particle pollution (24-hour PM_{2.5}).⁶⁴ Fresno-Madera-Hanford, CA, within the San Joaquin Valley Air Basin, is ranked by the ALA as the city with the worst short-term particle pollution (24-hour PM_{2.5}).⁶⁵ Bakersfield is also ranked by the ALA as the most-polluted city in the entire United State for year-round particle pollution (annual PM_{2.5}). The number of exposed sensitive receptors is the same as noted above for 24-hour PM_{2.5}.⁶⁶

In sum, there is ample evidence that NO_x, VOC, PM_{2.5}, and PM₁₀ emissions from the Project have the potential to result in significant public health impacts to a significant number of sensitive receptors in the San Joaquin Valley. The Oct. DSREIR failed to disclose the public health impacts from breathing air polluted by the increases in NO_x, VOCs, PM_{2.5}, and PM₁₀ emissions disclosed in the Oct. DSREIR but not modelled, thus failing as an informational document under CEQA.

The Oct. DSREIR relies on the OG-ERA to mitigate significant construction and operational impacts.⁶⁷ The OG-ERA allows individual operators to undertake their own pollution reducing projects, subject to air district approval. However, it is likely that most operators will pay a fee to the SJVAPCD, leaving mitigation up to the District.

⁶³ ALA 2020, p. 23-24.

⁶⁴ ALA 2020, p. 20.

⁶⁵ ALA 2020, p. 5, 20.

⁶⁶ ALA 2020, p. 21.

⁶⁷ Oct. DSREIR, pp. 4.3-130 to 4.3-143 and Appendix C.

The location of the OG-ERA projects, both those of individual operators and those funded with fees, will be determined outside of CEQA review, preventing public review. Further, the OG-ERA does not require any modeling to determine if mitigation projects reduce ambient air quality impacts at the locations impacted by Project emissions.

Thus, this post-hoc mitigation arrangement is not valid mitigation under CEQA. Mitigation must occur at the location where impacts occurs. The location of the impact(s) can only be determined using air quality modeling to convert the emissions summarized in Tables 1 and 2 into ambient concentrations. This analysis is missing from the Oct. DSREIR.

Further, future specification of OG-ERA projects by both the SJVAPCD and individual operators prevents the reviewing public from assessing the ability of proposed pollution-reducing projects to reduce increases in ambient concentrations of NO_x, VOCs, PM_{2.5} and PM₁₀ at the reviewing public's locations.

Finally, the Oct. DSREIR fails to specify that OG-ERA projects funded by the SJVAPCD or implemented by operators will be required for both PM₁₀ and PM_{2.5}, instead referring generally only to PM.⁶⁸ The OG-ERA only applies to VOCs, NO_x, and PM₁₀.⁶⁹ Significant amounts of PM_{2.5} will also be emitted, 438 ton/yr PM_{2.5} and 756 ton/yr PM₁₀, compared to significance thresholds of 15 ton/yr. The PM_{2.5} emissions, which are much more toxic from a public health standpoint, are excluded from the Agreement.⁷⁰

The Oct. DSREIR tap dances around the omission of PM_{2.5} by arguing that PM_{2.5} is a subset of PM₁₀ and by asserting that the SJVAPCD addresses PM_{2.5} and PM₁₀ jointly in its attainment plans and SIP strategies and that CARB has accepted this approach.⁷¹ However, the relative amounts of PM_{2.5} and PM₁₀ in any given OG-ERA project proposed to mitigate Project impacts can vary significantly from the relative amounts of PM_{2.5} and PM₁₀ from Project operations. Thus, any OG-ERA mitigation project must have the same relative amounts of PM_{2.5} and PM₁₀ as the Project impacts it proposes to mitigate.

⁶⁸ Oct. DSREIR, pp. 4.3-66/67.

⁶⁹ Oct. DSREIR, Appendix C, Oil and Gas Emission Reduction Agreement, (20160168) KC Agreement # 890-2016, pdf 435; https://psbweb.co.kern.ca.us/UtilityPages/Planning/EIRS/OG_SREIR/aVol2/Oil_Gas_SREIR_Oct%202020_Vol%202_Appendices%20A%20through%20E.pdf.

⁷⁰ Ibid., p.3 ("Mitigation of Criteria Pollutants" defined as ROG, NO_x, and PM₁₀). ROG are a subset of VOCs that include all organic gases except those exempted by federal law. Oct. DSREIR, p. 4.3-18.

⁷¹ Oct. DSREIR, p. 4.3-134.

Further, the OG-ERA does not require that mitigation projects occur prior to or at the time of the drilling and other sources of emissions. Thus, there is no basis to conclude that Mitigation Measure 4.3-8 and the OG-ERA would mitigate ambient air quality impacts and associated public health impacts of VOCs, NO_x, PM₁₀, and PM_{2.5}.

Regardless, the Oct. DSREIR concludes that Project emissions after implementing Mitigation Measure 4.3-8 and the OG-ERA “are still considered significant and unavoidable,”⁷² thus requiring further evaluation of public health impacts from increases in ambient concentrations of NO_x, PM_{2.5} and PM₁₀.

Mitigation Measure 4.3-8 and the OG-ERA will not mitigate ambient air quality impacts. Pollution-reducing projects implemented under the OG-ERA, unless located in the impacted area and occurring at the same time and place as the emissions to be mitigated, will not mitigate impacts to sensitive receptors downwind from the Project site. See discussion of offsets in Comment 3, below. Thus, the Oct. DSREIR has failed to disclose the potential for significant public health and biological impacts caused by significant increases in NO_x, VOC, PM_{2.5}, PM₁₀, and other emissions from the Project, as summarized in Tables 1 and 2, and thus has failed to propose adequate mitigation.

2.6. Significant Public Health Impacts from Criteria Pollutant Emissions

As noted *supra*, in *Sierra Club v. County of Fresno* the California Supreme Court affirmed CEQA’s mandate to protect public health and safety by holding that an EIR fails as an informational document under CEQA when it fails to correlate a project’s significant air quality impacts with potential human health impacts or explain why such further evaluation is infeasible.⁷³ An EIR must make a “reasonable effort to substantively connect a project’s air quality impacts to likely health consequences.”⁷⁴

The Oct. DSREIR made no attempt to estimate the Project’s air quality impacts, which would require ambient air quality modeling of the emissions in Tables 1 and 2. Thus, there is no basis in the Oct. DSREIR to connect the Project’s air quality impacts with likely health consequences because it failed to model the ambient air pollutant concentrations resulting from the Project’s construction and operational criteria pollutant emissions as summarized in Tables 1 and 2. Ambient concentrations at impacted locations are essential to determine public health and other impacts from criteria pollutant emissions.

⁷² Oct. DSREIR, p. 4.3-130.

⁷³ *Sierra Club v. County of Fresno* (2018) 6 Cal. 5th 502 (referred to as “the Friant Ranch Decision”).

⁷⁴ Cal. Pub. Res. Code § 21005, 21168.5; Cal. Code Regs. tit. 14, § 15151.

While the Oct. DSREIR concluded that construction and operational air quality impacts were significant, it failed to disclose the location of and nature of the resulting public health and other impacts from increases in these emissions. The Oct. DSREIR instead asserts that ambient air quality modeling “was not required to evaluate the potential significance of Project-related air emissions.”⁷⁵ This is incorrect. Without modeling the emissions, it is impossible to determine the impacted area (which may be distant from the source of the emissions) and the significance of the impact (e.g., cause or contribute to violations of ambient air quality standards). The Oct. DSREIR also failed to explain why modeling of air pollutant emissions is infeasible. In fact, modeling of emissions is feasible and routinely conducted in CEQA documents.

The Friant Ranch Decision concluded that CEQA requires that the potential for a project’s emissions to affect human health in an air basin must be disclosed when a project’s criteria air pollutant emissions exceed applicable significance thresholds, as here, or explain why such further evaluation is infeasible.⁷⁶ Tables 1 and 2 demonstrate that construction and operational emissions of NO_x, VOCs, CO, PM₁₀, and PM_{2.5} emissions exceed significance thresholds, requiring ambient air quality modeling to determine the location of the impact so effective mitigation can be identified. The Oct. DSREIR as written makes it impossible for the public to translate the emission numbers in Tables 1 and 2 into adverse health impacts or to understand why such translation is not possible.⁷⁷

The Oct. DSREIR, for example, failed to disclose the public health impacts from highly significant increases in construction and operational NO_x, VOC, and PM_{2.5} emissions. As explained in the Friant Ranch Decision, “The EIR must provide an adequate analysis to inform the public how its bare numbers translate to create potential adverse impacts or it must adequately explain what the agency does know and why, given existing scientific constraints, it cannot translate potential health impacts further.”⁷⁸ The public health impacts of these increases can easily be estimated using standard air modeling techniques.⁷⁹ Thus, the Oct. DSREIR fails as an informational document under CEQA.

⁷⁵ Oct. DSREIR, Air Quality, p. 4.3-122.

⁷⁶ Friant Ranch Decision, 6 Cal. 5th at 507-508, 518-522.

⁷⁷ Id. at 524.

⁷⁸ Id. at 524.

⁷⁹ See, for example, U.S. EPA, State Implementation Plan (SIP) Attainment Demonstration Guidance, 8-hour Ozone/PM_{2.5}/Regional Haze Modeling Guidance; <https://www.epa.gov/scram/state-implementation-plan-sip-attainment-demonstration-guidance#8ozone>.

The California Supreme Court also held in the Friant Ranch Decision that an EIR must make “a reasonable effort to discuss relevant specifics regarding the connection between two segments of information already contained in the EIR, the general health effects associated with a particular pollutant and the estimated amount of that pollutant the project will likely produce.”⁸⁰ Further, the EIR must show a “reasonable effort to put into a meaningful context the conclusion that the air quality impacts will be significant.”⁸¹

CEQA requires an EIR to adequately explain either (a) how “bare [emissions] numbers” translate to or create potential adverse health impacts; or (b) what the agency does know, and why, given existing scientific constraints, it cannot translate potential health impacts further. The Oct. DSREIR contains no responsive discussion or analysis, noting only that ozone and PM_{2.5} can have significant health impacts, without estimating the public health impacts of the Project’s VOC, PM_{2.5}, and other criteria pollutant emissions on nearby sensitive receptors, disclosing where the impacts would occur, disclosing whether they are significant, or explaining why such an analysis is unwarranted or infeasible.⁸²

Like the Friant Ranch EIR, the Oct. DSREIR quantifies how many tons per year the Project will generate of VOCs but does not quantify the ambient concentrations of *ozone* that these VOC emissions will create. Similarly, the Oct. DSREIR quantifies how many tons per year of NO_x, SO_x, CO, and PM_{2.5} would be generated by the Project but does not estimate the increase in ambient concentrations of these pollutants that sensitive receptors would breathe.

Emissions expressed in ton/yr or lb/day must be converted into ambient concentrations in micrograms per cubic meter (µg/m³) and compared to ambient air quality standards to estimate potential health effects to exposed parties. Neither Mitigation Measure 4.3-8 nor the OG-ERA require that reductions in ambient concentrations from OG-ERA emission reductions affect the same location(s) and sensitive receptors as the Project emissions that they offset. Thus, they provide no assurance that significant public health impacts will be mitigated.

The concentration in µg/m³ is required to evaluate the public health impacts of VOCs, PM_{2.5}, PM₁₀, and other pollutants. Although the Oct. DSREIR explains that ozone can cause health impacts, this information is meaningless because the Oct. DSREIR does not estimate ambient concentrations of ozone, PM_{2.5}, or any other

⁸⁰ Friant Ranch Decision, 6 Cal. 5th at 524.

⁸¹ Id. at 522.

⁸² Oct. DSREIR, pp. 4.3-11/12 and 4.3-15/16.

pollutant that the Project will emit. Further, the Oct. DSREIR does not disclose the increment in the levels of exposure to ozone, PM_{2.5}, and other pollutants that would trigger adverse health impacts. As the entire San Joaquin Air Basin currently violates both the state and federal PM_{2.5} and ozone ambient air quality standards, any increase in ambient concentrations of ozone, PM_{2.5}, and other pollutants is a per se significant public health impact as the ozone, PM_{2.5}, and other ambient air quality standards were established to protect public health.

In short, the Oct. DSREIR makes it impossible for the public to translate the emission numbers in lb/day and ton/yr into health impacts at their locations because ambient concentrations corresponding to the emissions summarized in Tables 1 and 2 are not disclosed. The Oct. DSREIR calculates emissions of VOC, PM_{2.5}, PM₁₀, and other pollutants (Tables 1 and 2) but fails to translate these emissions into ambient concentrations that sensitive receptors would breathe. Thus, it fails as an informational document under CEQA.

In addition, Table 1 shows that CO emissions exceed the construction significance threshold by a factor of 92. Table 2 shows that operational Project emissions exceed the significance thresholds for CO by a factor of 23 and SO₂ by a factor of 7, which also can have significant public health impacts. These pollutants were not directly discussed in this comment because air quality in the San Joaquin Valley Air Basin currently meets federal and state ambient air quality standards for them. However, this does not excuse the County from converting the emissions of CO and SO₂, summarized in Tables 1 and 2, into ambient concentrations and comparing the results with ambient air quality standards, as summarized in the Oct. DSREIR, Table 4.3-1. or with significant impact levels (SILs) for SO₂.⁸³ If these analyses demonstrate that the Project's emissions would result in ambient concentrations of CO and SO₂ that exceed ambient air quality standards and/or SILs, which apply in attainment areas, the FEIR must include mitigation to reduce the impact(s) to less than significant levels.

3. OFFSETS WILL NOT MITIGATE AIR QUALITY IMPACTS IN KERN COUNTY

The Oct. DSREIR concludes that Project emissions would exceed the SJVAPCD operational emissions significance threshold and thus "would represent a potentially significant impact."⁸⁴ However, according to the Oct. DSREIR, "all emissions increases from permitted equipment plus the 10% allowance from non-permitted equipment

⁸³ EPA, New Source Review (NSR) Permitting, Significant Impact Levels (SILs) & Cumulative Analyses; <https://www.epa.gov/nsr/significant-impact-levels-sils-cumulative-analyses>.

⁸⁴ Oct. DSREIR, p. 4.3-111.

would be required to be fully offset pursuant to District Rule 2201.... Therefore, there would be no net increase in these emissions.”⁸⁵

The Oct. DSREIR cannot rely on offsets to mitigate air quality impacts from permitted equipment under CEQA because offsets are not valid CEQA mitigation unless they reduce the emissions at the time and location where the impact occurs. The files that I reviewed do not disclose the location where the impacts occur or identify the offsets that will be relied on. Thus, the Oct. DSREIR fails as an informational document under CEQA.

First, historically banked ERCs are part of the CEQA baseline. The emission reductions are already accounted for in the ambient air quality at the Project site at the time of project proposal. Increases in emissions from the Project will increase emissions relative to the existing baseline. Purchasing ERCs would not reduce, offset, or mitigate increases in Project emissions, as the reductions occurred historically, before the Project was conceived and are part of the baseline. Thus, the portion of the increase in emissions in Table 2 that would be offset under Rule 2201 must be mitigated through Mitigation Measure 4.3-8 and the OG-ERA, amended as discussed in Comment 2.5.

Second, historically banked ERCs are legally distinct from emission reductions required under CEQA to mitigate new increases in emissions. Thus, the ERC concept is not consistent with the CEQA mandate to mitigate actual impacts on local receptors. The emissions of VOCs, for example, will increase in the area where the new Project emissions are released. Historically banked ERCs will not mitigate future emissions. The impact of the Project’s increased emissions on local sensitive receptors must be evaluated under CEQA and mitigated at the time and place that it occurs.

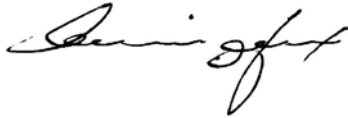
On a commonsense level, it is not logical to assume that ERCs, which frequently have been banked decades ago, will do anything to mitigate impacts from local emission increases, especially in a region plagued with serious and ongoing air quality violations. Instead, this approach aggravates the exposure of residents to extraordinarily unhealthy ozone, PM_{2.5}, and PM₁₀ concentrations in the local ambient air, which was not adequately evaluated in the Oct. DSREIR.

Therefore, the use of ERCs as well as the proposed OG-ERA are not valid mitigation under CEQA. They are not acceptable substitutes for performing local air quality analyses and mitigating the local air quality impacts where they occur, as discussed in Comment 3. A revised CEQA document should clearly state that the use of offsets to mitigate air quality impacts, except those offsets that occur at Project sites at the time of site startup, are not valid mitigation. Instead, conventional mitigation, such

⁸⁵ Oct. DSREIR, p. 4.3-111.

as pollution controls on emitting equipment, the use of only Tier 4 construction equipment, and properly located OG-ERA projects under MM 4.3-8 are required to reduce the significant NO_x, VOC, PM_{2.5}, PM₁₀ and other emissions to the maximum extent feasible.

Sincerely,

A handwritten signature in black ink, appearing to read "Phyllis Fox", with a stylized, cursive script.

Phyllis Fox, Ph.D., PE

ADDENDUM C

To: Colin O'Brien (Earthjustice), Ann Alexander (NRDC)
From: Tanja Srebotnjak, PhD
Date: December 10, 2020
Re: Assessment of Kern County response to scientific and peer-reviewed literature submitted by Earthjustice and co-counsel in relation to the Kern County, CA proposed project called "Revisions to Title 19—Kern County Zoning Ordinance (2020-A)"

Background

Earthjustice and its co-counsel, i.e., the Center for Biological Diversity, Center on Race, Poverty & the Environment, the Natural Resources Defense Council, and Sierra Club (collectively, "Earthjustice") submitted comments (September 16, 2020) to Kern County in response to its proposed revision of Title 19—Kern County Zoning Ordinance (2020-A) and the accompanying August Draft Supplemental Recirculated Environmental Impact Report (August DSREIR).

The comments included a list and discussion of scientific and peer-reviewed literature documenting the human health risks associated with conventional and unconventional oil and gas production. Earthjustice also submitted copies of the literature cited. Kern County in its response to this list, in its October Draft Supplemental Recirculated Environmental Impact Report (October DSREIR), offered a short summary of each submitted study and identified one or more points of critique of the study design, its implementation (e.g., regarding sample size), and/or its conclusions.

My work has focused on reviewing the responses by Kern County in the October DSREIR to the literature submitted and evaluating them in the context of statistical, epidemiological and public health practice regarding risk assessment and risk association studies. This memo summarizes my findings.

Material Reviewed

I reviewed the following material for my comments:

- Comments submitted on September 16, 2020 by Earthjustice on the August Draft Supplemental Recirculated Environmental Impact Report for Revisions to Title 19-Kern County Zoning Ordinance (2020-A) Focused on Oil and Gas Local Permitting (SCH # 2013081079) (September 16 Letter).
- Portions of the Kern County October Draft Supplemental Recirculated Environmental Impact Report (October DSREIR), available at <https://kernplanning.com/environmental-doc/oil-and-gas-sreir/>

- Section 4.3 – Air Quality, Oil and Gas Operations Health Effects
- Section 6.7.7 – Alternative 7, 2,500-Foot Setback Alternative
- Appendix B – on multi-well and single-well health risk assessments.
- Report on Final Environmental Impact Report for Revisions to the Kern County Zoning Ordinance – 2015(C) (Focused on Oil and Gas Local Permitting) prepared by Dr. Phyllis Fox for Shute, Mihaly & Weinberger LLP, dated November 6, 2015.
- Comments Regarding ECS’s Cumulative Health Risk Assessment (HRA) for the Kern County Final EIR – Proposed Drilling and Oil and Gas Operations prepared by Dr. Andrew Gray, Gray Sky Solutions, dated September 15, 2020.
- Letter from Dr. David H. Garabrant to Jeffrey Dintzer, dated September 12, 2020 (Garabrant Letter).

Analysis of Literature Summaries and Critiques by Kern County

The October DSREIR includes references to and single-paragraph summaries and critiques of 47 scientific, peer-reviewed, and technical studies and commentary that address research into different health risks and outcomes in the context of conventional and unconventional oil and gas development and production. Most or all of these studies—investigating general health effects, asthma and respiratory effects, adverse birth outcomes, cardiovascular impacts, endocrine disrupting chemicals, and mental health effects—were provided by Earthjustice in their September 16 Letter.

The County criticizes almost every study listed and the main points of critique are:

1. Association is not causation;
2. Lack of direct exposure measurement and reliance on exposure assessment based on number of wells and/or production volumes of wells located within a specified radius of the residences of the studied population; where exposure data is used, the biological pathways from exposure to adverse health outcome are not always clear;
3. Insufficient controlling for other factors that might influence health outcomes, including but not limited to mothers’ occupation, births to same mother, mothers moving residences between conception, delivery or exposure, housing quality, indoor air quality, dependence on groundwater for drinking water, other sources of air pollution in the area, hydrogeological and meteorological conditions in the area;
4. Small sample sizes;
5. Non-representative population sample;
6. Use of self-reported health symptoms and status as opposed to confirmed medical records and laboratory analyses;
7. Lack of applicability of studies conducted outside of California, addressing natural gas production, or involving different geologies, engineering practices, and regulatory regimes to the Kern County context; and
8. Use of data based on average wells and lack of consideration of the engineering specifics of individual wells and nearby structures.

These critiques were typically plucked from the portion of the studies' discussion addressing constraints and limitations. They do not represent the County's own analysis or an in-depth review of the studies' experimental designs, data collection and analysis approaches, or their findings.

The papers cited in the September 16 Letter and referenced in the October DSREIR found positive associations, correlations, and linkages between the studied health outcomes and variables associated with oil and gas development or found elevated levels of potential exposure to chemicals, hazardous air pollutants, and other known toxic contaminants used or released during upstream oil and gas operations. This is in line with the general literature on oil and gas development. Keyword searches on Google Scholar, PubMed, and WebOfKnowledge yield hundreds of public health relevant peer-reviewed articles on U.S. oil and gas development with the majority identifying elevated health hazards and risks for people and communities in the proximity of oil and gas development sites and also characterizing exposure risks for oil and gas workers.

Notable about the County's summaries and critiques of the cited literature is a cherry-picking approach that focused on highlighting study limitations and, on several occasions, mentioning inconclusive or negative findings that were marginal to the study's stated purpose. It should be emphasized that it is standard practice for scientific studies to identify and discuss the scope, limitations, and caveats of their investigation. As Puhon et al. (2012) write "[u]nbiased and frank discussion of study limitations by authors represents a crucial part of the scientific discourse and progress." Indeed, studies that do so extensively and transparently represent best practices in scientific publishing, since "[i]n today's culture of publishing many authors or scientific teams probably balance 'utter honesty' when discussing limitations of their research with the risk of being unable to publish their work. Currently, too few papers in the medical literature frankly discuss how limitations could have affected the study findings and interpretations." (Puhon et al., 2012)

In regard to the above-noted limitations that the County cites regarding the reviewed literature, they generally have little to no merit as critiques of the studies' findings, for the reasons explained below.

1. Association is not causation

The County, citing the Garabrant Letter, states that the studies by Tran et al. (2020) and Gonzalez et al. (2020) do not prove causation and lack direct exposure measures in their investigations of adverse birth outcomes in proximity to California oil and gas sites. The same argument can be extended to most other studies in the literature review provided by Earthjustice, raising the question of the validity of association studies in determining the health risks and hazards for people and communities living in the proximity of oil and gas development.

First, it should be noted that proving cause-effect relationships is very challenging in any field, discipline, and context. Freedman (2005) examines several conditions that need to be met in order to infer causality from a statistical model, including strong statistical assumptions and knowledge of the underlying data generating mechanism. Therefore, many studies are associative in scope and purpose, while nonetheless providing useful insights into the strength, functional form, and other characteristics of the relationships between variables of interest.

Indeed, observational association studies are a widely used approach in epidemiology and contribute meaningfully to public health decision-making. The County's implication that the cited studies should be ignored or downweighed because they use statistical analysis to determine the association between one or more health outcome variables of interest on the one hand and one or more explanatory variables on the other is thus misguided and does not hold up to scrutiny in light of decades of established epidemiological practice.

To name just one example, the Institute of Medicine Committee on Gulf War and Health continues a 2-decade-long series of studies examining the health effects of soldiers who served in the Gulf War. A total of 11 volumes have been published since 2000 and many insights are based on associations between soldiers' observed health outcomes and their documented and likely exposures to harmful chemicals and compounds such as hydrocarbon fuels and their combustion products, sarin, depleted uranium, insecticides, and solvents during the war. Volume 3 (NRC, 2014) deals specifically with the "long-term, human health effects associated with exposure to selected environmental agents, pollutants, and synthetic chemical compounds believed to have been present during the Gulf War." In particular, the Committee examined the associations between health outcomes and exposure to hydrocarbon fuels and combustion byproducts, including hydrogen sulfide, hydrazine and red fuming nitric acid. Regarding the use of association-based studies, a 2009 Update states that "[i]n epidemiological research, analytical studies are designed to permit the examination of the association between two or more variables. ... Association is primarily a statistical concept referring to the quantification of the relationship (positive, negative, or none) between two variables (e.g., independent and dependent)."

Studies aiming to show causality are often only implementable in controlled experimental/laboratory settings. However, well-designed observational studies using statistically measurable associations between the outcome variable(s) of interest and the potential explanatory variable(s)—including proxy variables—can generate valid and meaningful insights. Thus, the cited studies should not be considered flawed at the outset, but their validity evaluated within the context of their scope and purpose: What was the authors' intent to assess and was the chosen study design suitable to accomplish this goal.

It is also noted that association studies are also widely used in other disciplines and are a key study method in genetics, where observational Genome-wide Association Studies (GWAS) have become the de-facto approach for linking gene-expression data with phenotype information.

2. Lack of direct exposure measurement and reliance on exposure assessment based on number of wells and/or production volumes of wells located within a specified radius of the residences of the studied population; where exposure data is used, the biological pathways from exposure to adverse health outcome are not always clear

The County criticizes the lack of direct exposure measurements in several of the reviewed studies. While it can be beneficial in principle to measure actual exposures to health-relevant agents and to establish exposure-effect relationships, failure to do so is not problematic if such analysis is not within the study's scope and purpose.

Exposure measurement in oil and gas operations is known to be challenging, in part because producers may not be required to conduct measurement/monitoring of relevant air contaminants on site or at fence lines, individual spot sampling is hampered by the high variability of emission episodes, regional air quality monitors are not designed to capture such episodes and/or do not monitor the specific air contaminants, and monitoring equipment and subsequent laboratory analysis is costly to acquire and conduct. Direct exposure studies for large and/or retrospective studies is also generally impractical and impossible, a problem further exacerbated if exposure to agents through multiple pathways (e.g., air, water, soil) or to multiple agents is needed.

For these and other reasons, researchers design studies to use proxy variables that have been shown to correlate with the exposure measure(s) of interest. These proxies include measures of distance-weighted well density (sometimes coupled with information of oil and gas production volumes for each well) in the vicinity of known receptors. Studies such as the one by Gonzalez et al. (2020) have also validated their proxy by confirming that increased oil and gas activity as measured by well numbers and/or production volumes is associated with increased concentrations of specific air pollutants.

3. Insufficient controlling for other factors that might influence health outcomes, including but not limited to mothers' occupation, births to same mother, mothers moving residences between conception, delivery or exposure, housing quality, indoor air quality, dependence on groundwater for drinking water, other sources of air pollution in the area, hydrogeological and meteorological conditions in the area

The County's criticism refers to the challenge in any observational epidemiological study to appropriately control for confounding variables. A confounder is a variable that influences the outcome variable(s) of interest while also being related to one or more explanatory variables, thus rendering the association between them spurious. Additional sources of spurious associations are random error, systematic error (bias), and reverse causality. As the Institute of Medicine in its Gulf War report states, "[r]andom error and systematic error can also be responsible for not observing an association when one truly does exist. It is essential to consider these alternative explanations in judging the findings of an epidemiological study."

Many studies use sensitivity analyses to test the dependence of their results on the assumptions and analysis decisions made in the study, a safeguard that was also applied to studies in the literature provided to the County (e.g., Gonzalez et al. 2020). Part of the scientific peer-review process is for other researchers to examine the extent to which the authors have ensured that confounding and other sources of spurious associations or flawed causality are minimized. While the County might raise objections to the choice of control variables in the authors' methods and models, the domain-specific expert peer-review provides a substantial level of insurance against the omission of critical control variables.

In other cases, the authors have discussed why they were not able to include a specific control variable in the study's limitations section. In his letter, Dr. Garabrant states "neither study [Tran et al. (2020) or Gonzalez et al. (2020)] assessed confounding due to smoking, drug use, alcohol, infections during pregnancy, pharmaceuticals, malnutrition, poverty, lack of access to health care, maternal disease, pregnancy complications, or genetics." However, this is not true as the authors use and discuss several potential confounding variables, including smoking, prenatal care, socio-economic status and nearby traffic-related air pollutants. None of these factors was found to alter significantly the effect of the oil and gas metric used in their models.

4. Small sample sizes

Small sample sizes can arise by design and by necessity. Circumstances, cost, time, and other factors influence the sample size in observational studies. In psychology, neuroscience, and astronomy, small samples are the norm rather than the exception and research findings are still meaningful and accepted.

The main impact of small sample sizes is lower statistical power to find statistical evidence in support for the hypothesis of interest (see Figure below). There is also a risk that the sample might be unusual by chance and give rise to a false-positive finding.

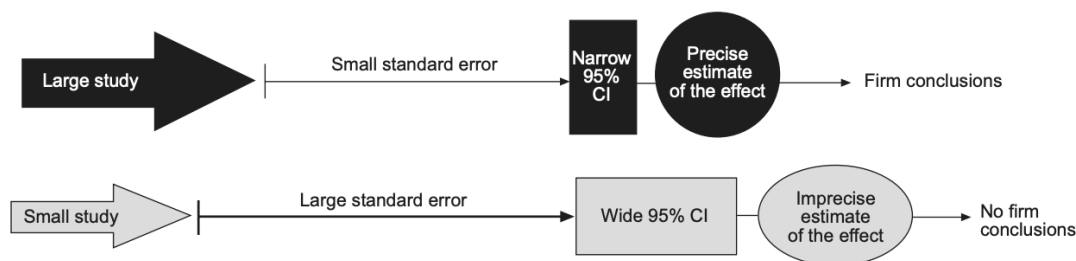


FIGURE 1. Schematic diagram showing how study size can influence conclusions. CI: confidence interval.

Source: Hackshaw (2008)

However, if the study finds statistical evidence for a health effect despite a small sample size, care has been taken in searching for alternative explanations for the positive finding and the study is designed to minimize systematic bias and confounders, the conclusions drawn for the

population included in the sample are likely valid (albeit they might not be generalized to a broader population, see 5.).

It is also noted that the collective evidence from the current ‘universe of studies’, which includes large cohort studies, on the human health risks associated with oil and gas development is in substantial agreement that risks exist, that they can be substantial, and that they increase with higher levels of exposure.

5. Non-representative population sample

Some of the reviewed literature used ‘convenience samples’ or collections of observational units that are deemed not representative. Representativeness of the study population or exposure metric is a criterion used to ensure that the observational units of a study reflect the relevant characteristics of the population and/or conditions about which researchers wish to draw inference.

The key approach to ensuring representativeness is randomization. However, not all data collection contexts, including in observational studies, permit randomized sampling. This does not mean, however, that the study should be discarded. It only means that—absent the successful application of validity screenings and bias adjustment (Deeks et al., 2003)—the study results can only be applied to the studied population or conditions. Such limitation also applies to both directions of the evidence found, i.e., the presence or lack of evidence for a statistically significant association between the outcome of interest and the explanatory variable(s) does not imply it does or doesn’t exist in reality. It just means that the data collected and analyzed represented a not-fully representative part of the full picture.

6. Use of self-reported health symptoms and status as opposed to confirmed medical records and laboratory analyses

The County criticized the use of health symptom questionnaires to collect data. Bias due to self-reported health symptoms and status falls under information bias, and is also referred to as misclassification (Althubaiti, 2016). While such potential bias bears note, questionnaires are also one of the most common sources of bias and one that has been the subject of considerable research. Althubaiti also notes that “[s]elf-reporting is a common approach for gathering data in epidemiologic and medical research. ... Nevertheless, when self-reporting data are correctly utilized, they can help to provide a wider range of responses than many other data collection instruments. For example, self-reporting data can be valuable in obtaining subjects’ perspectives, views, and opinions.”

Thus, the studies criticized by the County for using self-reported health data are not marginal studies in the field of epidemiology, but similar in their methods to many others and moreover, methods exist to reduce this bias through (i) careful instrument design (e.g., questionnaire, survey, app), (ii) instrument validation, pilot testing, and interviewer training (if applicable), and

(iii) adjustment of data obtained through the instrument. Critiquing the studies outright for using self-reported health data negates the possibilities that researchers can use to address potential sources of bias. Furthermore, the studies in the reviewed literature that used self-reported health information report findings that are in line with those that used clinical diagnoses (cf. Arbelaez, J. and B. Baizel. (2015), Shamasunder, B. et al. (2018), Weinberger, B. et al. (2017), Peng, L. et al. (2018), Willis M.D. et al. (2018), and Rasmussen, S.G. et al. (2016)).

7. Lack of applicability of studies conducted outside of California, addressing natural gas production, or involving different geologies, engineering practices, and regulatory regimes to the Kern County context

The County appears to dismiss or downweigh any study that does not specifically target oil and gas production in California arguing that different geologies, engineering practices, and regulatory environments render comparisons moot. As the rich body of literature on health risks associated with oil and gas development (conventional and unconventional) indicates, health risks exist in all locations with oil and gas activities (as identified in Garcia-Gonzalez et al., 2019). While local contexts and practices indeed vary, several review studies have shown that these contexts also have many commonalities regarding emissions of air contaminants, risks to ground and surface water, noise, light pollution, and other potential health risks as they share similarities during exploration, well pad preparation, drilling, well completion, production, and well shut-in.

8. Use of data based on average wells and lack of consideration of the engineering specifics of individual wells and nearby structures

The County criticized the use of “average gas wells” in thermal modeling by Haley M. et al. (2016) to assess the adequacy of current setback distances in three major shale plays, the Marcellus, Barnett and Niobrara. Emissions of air pollutants vary across time, space, and across wells. Depending on the purpose and scope of the study, such variation may need to be taken into account. For example, if the goal is to identify the major emission sources of specific air contaminants at a specific site or small number of sites in close proximity to receptors, individual sensors may need to be installed at various types of equipment. However, if the purpose is to characterize the airfield of a larger area such as an oil field or nationally, average statistics on emission rates for different source categories will generally be sufficient. Examples of such practices include bottom-up emission inventories for methane and other VOCs. The County’s assertion that using central measures of tendency to assess emissions from a group of similar emission sources results in misleading findings is misguided and contradicts existing practice (see, for example, EPA’s Natural Gas STAR Program to determine methane emission inventories).

On the Role of Field Studies

Field studies play a critical role in epidemiology. As the CDC's Field Epidemiology Manual states that "[a] primary goal of field epidemiology is to guide, as quickly as possible, the processes of selecting and implementing interventions to lessen or prevent illness or death when such problems arise." (CDC, 2020) While the Manual's focus is on acute or emerging public health threats, it recognizes that the value in such studies lies in "[h]ealth departments becom[ing] aware of possible disease outbreaks or other acute public health problems in different ways. Situations might gain attention because astute clinicians recognize unusual patterns of disease among their patients and alert health departments, surveillance systems for monitoring disease or hazard trends detect increases, the diagnosis of a single case of a rare disease heralds a broader problem or potential threat, or members of the public are concerned and contact authorities."

The nature of field studies is often observational, i.e., collecting data on ongoing environmental, industrial, and other processes and the incidence and prevalence of health outcomes of concern to the public and/or public health officials. As first collectors of data, the resulting association studies inform and guide public health responses and the design of confirmatory experimental studies, investigations into the biological pathways of exposure to the suspected agent(s), and manifestation of the adverse health outcome(s). Field studies thus carry direct, immediate, and persistent value in forming understanding into the causes of morbidity and mortality and resulting public health and other interventions.

Field studies also provide valuable "ground truth" data to modeling exercises. Such data is used to calibrate and validate models. It is, for example, standard practice in oil and gas reservoir studies to integrate field observations (e.g., stress/strain data, core and well-logging data, and previous production history) with regional satellite images, seismic data, and advanced reservoir models.

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0061-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is introductory and does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0061-2

The comment requests that a process be conducted that allows the County's Spanish-speaking residents to participate meaningfully in the public process of the SREIR, particularly in light of the COVID-19 pandemic.

Please see Global Response (GR) 3 – Public Process. A scoping meeting, public workshops, and separate 45-day public comment periods were provided for the SREIR (August 2020) and SREIR (October 2020). Although the public workshops were not required under CEQA, nor were meetings subject to the Ralph M. Brown Act (Cal. Gov. Code § 54950) (Brown Act), they were conducted virtually via teleconference and included Spanish translation services to allow for public participation amid the COVID-19 pandemic. Please see Responses to Comments 0007-2, 0007-4, 0007-5, 0009-2, 0009-8, and 0009-9.

0061-3

The comment requests that the notices and sections of the SREIR (October 2020) be translated into Spanish and the report be recirculated. Please see GR-3 – Beyond the Scope of the SREIR. Lead agencies are not required under CEQA or the CEQA Guidelines to translate notices or portions of environmental review documents into non-English languages. In ruling on the 2015 FEIR, the Court of Appeal confirmed that the County was not required to translate public notices or the executive summary into Spanish, or to provide Spanish-language interpreters at public meetings related to the 2015 FEIR. *King & Gardiner Farms, LLC v. County of Kern* (2020) Case No. F077656, Slip Opinion, (Cal. Ct. App. 5th Dist. Feb. 25, 2020), pp. 122–126. Please see also Responses to Comments 0007-2, 0007-5, 0009-8, and 0009-9.

0061-4

The comment states that a lead agency cannot lawfully adopt a ministerial permitting ordinance without detailed site-specific CEQA analysis of every location where ministerially permitted uses will occur. The comment also states that mitigation measures in the SREIR require the lead agency to exercise discretion over permit approvals.

Please see Responses to Comments 0009-10, 0009-11, 0009-12, and 0009-13, GR-1 – Beyond the Scope of the SREIR; and GR-2 – Ministeriality. CEQA does not prohibit a local government from adopting an ordinance that makes certain uses “by right” or ministerially permitted uses, and it is an agency’s discretion over permit approval, not over enforcement of mitigation measures, that renders a project discretionary. The SREIR’s mitigation measures have been further revised to remove potentially subjective language. In response to the comment on the SREIR (August 2020), MM 4.2-2(h) was revised in the SREIR (October 2020), and the comment does not state that MM 4.2-2(h) contains any discretionary language. In further response to this comment, revisions have now been made to all mitigation measures described in this comment, with the exception of MM 4.14-(l), which confers discretion on a qualified biologist, rather than the County permitting staff. See Response to Comment 0009-13.

0061-5

The comment states that the SREIR did not adequately analyze or mitigate air quality impacts and failed to address alleged deficiencies in MM 4.3-8 and the SREIR’s analysis of particulate matter up to 2.5 microns in diameter (PM_{2.5}) as directed by the Court of Appeal.

Please see Responses to Comments 0009-4 and 0009-16 through 0009-30. For responses to the Pless Report submitted with the comment letter of September 16, 2020, please see Responses to Comments 0009-131 through 0009-159. For responses to the Pless Report attached to this comment, please see Responses to Comments 0061-115 through 0061-136. For responses to the Fox Report attached to this comment, please see Responses to Comments 0061-137 through 0061-184. For responses to the Fox Report on Valley Fever attached to this comment, please see Response to Comment 0061-208.

0061-6

The comment explains MM 4.3-8 and the Oil and Gas Emission Reduction Agreement (OG-ERA). The comment states that MM 4.3-8 is not designed to achieve no net increase in emissions, and that the SREIR contains no evidence to support the conclusion that it is designed as such.

Please see GR-1 – Beyond the Scope of the SREIR. The Project was unanimously approved and the 2015 FEIR certified by the Kern County Board of Supervisors on November 9, 2015. Several lawsuits were filed challenging the 2015 FEIR. On February 25, 2020, the Court of Appeal issued a decision upholding the 2015 FEIR against all claims except for five areas in which the FEIR did not comply with CEQA: (1) mitigation of water supply impacts; (2) impacts from PM_{2.5} emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well Health Risk Assessment (HRA). On June 12, 2020, the Superior Court issued a Modified Judgment consistent with the Court of Appeal's decision. The court directed the County to set aside its certification of the FEIR and approval of the Ordinance, and to prepare a supplemental CEQA review correcting the five defects before reconsidering and potentially reapproving the Ordinance. The Court of Appeal's decision and the Modified Judgment are consistent with controlling caselaw, which provides that, where a court decision requires the lead agency to correct specific defects in an EIR, the agency need not start the EIR process anew, and is required only to address those specific issues identified by the court for correction. The comment claims problems with issues beyond those that the Court of Appeal decision and Modified Judgment direct the County to analyze before considering certification of the SREIR. The Superior Court and Court of Appeal resolved all other CEQA claims in favor of the County, including the claim that MM 4.3-8 and the OG-ERA were deficient under CEQA and not supported by substantial evidence. The Final SREIR is not required to include new analysis of topics beyond the five issues identified in the Court of Appeal decision. The Court of Appeal found that the EIR determined that MM 4.3-8 was feasible, and that this finding was supported by substantial evidence. Slip Opinion, at p. 62. For a full discussion of MM 4.3-8 and the OG-ERA, please see Responses to Comments 0009-17 through 0009-29.

Courts generally defer to an agency's assessment of the effectiveness of mitigation measures proposed in an EIR. As the court explained in Sacramento Old City Ass'n v City Council (1991) 229 CA3d 1011, 1027:

For projects for which an EIR has been prepared, where substantial evidence supports the approving agency's conclusion that mitigation measures will be effective, courts will uphold such measures against attacks based on their alleged inadequacy.

See Laurel Heights Improvement Ass'n v Regents of Univ. of Cal. (1988) 47 Cal.3d 376, 407 (reviewing courts do not weigh conflicting evidence on effectiveness of mitigation). In Center for Biological Diversity v Department of Conservation (2019) 36 Cal.App.5th 210, 239, the court applied the presumption from Evidence Code § 664 that official duties have been regularly performed in upholding the adequacy of mitigation measures in an agency mitigation manual. A long line of appellate decisions has applied this deferential approach to agency determinations of mitigation measure effectiveness. See, e.g., Banning Ranch Conservancy v City of Newport Beach (2012) 211 Cal.App.4th 1209, 1233 (courts do not weigh expert evidence on effectiveness of mitigation measures); Clover Valley Found. v City of Rocklin (2011) 197 Cal.App.4th 200, 261 (measures mitigating impacts to wetlands were sufficient to protect listed bird species by protecting their habitat); City of Long Beach v Los Angeles Unified Sch. Dist. (2009) 176 Cal.App.4th 889 (mitigation proposal contained sufficient information to enable those who did not participate in EIR preparation process to understand and consider issues raised and conclusions reached); Environmental Council of Sacramento v City of Sacramento (2006) 142 Cal.App.4th 1018, 1041 (agency properly considered various quantitative and qualitative factors in determining that impacts to biological resources would be adequately mitigated); Association of Irrigated Residents v County of Madera (2003) 107 Cal.App.4th 1383, 1398 (while there were differing opinions on question of whether the project would affect kit fox and whether EIR's mitigation measure would be effective, agency was entitled to resolve conflict and conclude that mitigation measures would be sufficient); National Parks & Conserv. Ass'n v County of Riverside (1999) 71 Cal.App.4th 1341, 1366 (county had sufficient basis in expert opinion and other evidence to conclude that the project's potential impacts on desert tortoise would be mitigated to insignificant level).

0061-7

The comment states that the SREIR does not disclose whether sufficient pollution-reducing opportunities exist in the San Joaquin Valley to effectuate MM 4.3-8 and that MM 4.3-8 is not supported by substantial evidence.

Please see GR-1 – Beyond the Scope of the SREIR. The Court of Appeal found that the 2015 FEIR's finding that MM 4.3-8 was feasible was supported by substantial evidence. Slip Opinion, at p. 62; see also Responses to Comments 0061-6 and 0009-17. Challenges to MM 4.3-8 at the Court of Appeal stated similarly that there was a failure to assess whether sufficient pollution-

reducing activities were available and whether it was feasible to offset the Project's emissions. Slip Opinion, at p. 59; see also Response to Comment 0009-17. As to the feasibility of MM 4.3-8, the court found that "CEQA and the Guidelines do not explicitly require an EIR's discussion of a fee-based mitigation program to describe the availability of impact reducing or offsetting projects." Slip Opinion, at p. 59. The court concluded that "specific information about projects that might be funded in the future is not required to enable persons reading the EIR to understand and consider meaningfully the issues raised by MM 4.3-8." Slip Opinion, at p. 61. The court also found no evidence that the County failed to disclose all that it reasonably could about future opportunities that might arise under MM 4.3-8, including a list in the 2015 FEIR of potential sources that are available to be replaced. As determined by the Court of Appeal, CEQA does not require the SREIR to conduct the specific analysis requested by the comment in order to demonstrate that MM 4.3-8 is feasible. Just as the SREIR states that it is not feasible at this time to identify specific projects to provide the reductions needed under the OG-ERA in each year through 2035, it is not feasible to identify sources whose emissions might be reduced to compensate for emissions from the Project in each year through 2035.

Though the comment attempts to separate these analyses, they are the same. Any current emissions inventory would necessarily only represent a subset of potential sources that would exist over the next 15 years and that could potentially be available as emission reduction opportunities. Attempting to assume both Project emissions over the next 15 years, and the potential emissions that would exist and be available as emission reductions projects to offset Project emissions under the OG-ERA over the next 15 years, would be speculative and infeasible. CEQA does not require an agency to foresee the unforeseeable, but only requires the agency to find out and disclose all that it reasonably can. CEQA Guidelines § 15144. If, as the comment suggests, there are ever not enough pollution-reducing projects available to offset Project emissions, then applicants will be required to implement their own direct pollution-reducing projects in accordance with MM 4.3-8. Please see also Responses to Comments 0009-21, 0009-22, 0009-25, 0009-29, 000 9-144, and 0009-145.

Other cases have held that an Emission Reduction Agreement (ERA) that only suggests a portion of the necessary emission reduction projects needed to offset project emissions but that relied on the San Joaquin Valley Air Pollution Control District's (SJVAPCD) assurance that additional projects will be found was valid. See *Center for Biological Diversity et al. v. Kern County*, Fifth Appellate District, Case No. F061908. The court here also stated that it is typical that offsite emission reduction projects offsetting all of the project's impacts cannot be identified at the time of project approval. The court identified that this is especially the case where a project will be built over a long period of time, and offsite projects will have to be found among opportunities that arise over the years. According to the court, holding that a lead agency cannot rely on an air pollution control district's contractual commitment to use mitigation fees to offset emissions or on that district's opinion, based on its experience and expertise, that it will be able to do so would discourage lead agencies and project proponents from using fee-based mitigation for air pollution. The court held that this would discourage use of fee-based mitigation even though no other mitigation may be available and would lead them to find that impacts are significant and unavoidable rather than try to mitigate them as much as feasible. The same scenario exists here. The SJVAPCD has a contractual obligation under the OG-ERA to fund emission reduction projects to mitigate the Project's emissions to net zero and has stated that it supports the OG-ERA. The SJVAPCD has not indicated that it does not believe that full mitigation is possible under the OG-ERA.

0061-8

The comment states that MM 4.3-8 is inadequate because it does not mandate a schedule for implementing pollution-reducing projects, nor does it include any mechanism to ensure that the rate of new permitting does not outpace the rate of mitigation. The comment also states that the SREIR does not inform the public that a gap may exist between the onset of emitting activities and mitigation.

Please see GR-1 – Beyond the Scope of the SREIR. Please see Response to Comment 0009-17, which explains that nothing in CEQA or CEQA caselaw requires mitigation fee programs to implement mitigation contemporaneously with project activities. Courts have held that even mitigation with no specific schedule for implementation is sufficient. See *Friends of Lagoon Valley v. City of Vacaville* (2007) 154 Cal.App.4th 807, 818 (absence of specific time schedule for completing road improvements with traffic mitigation fees was not fatal). See SREIR (October 2020), Vol. 1, at 4.3-141–142. Please also see Responses to Comments 0061-7, 0009-18, 0009-19, and 0009-20. Response to Comment 0061-9 shows that implementation of emission reduction projects is occurring roughly on pace with collection of OG-ERA fee mitigation monies.

0061-9

The comment states that the SREIR (October 2020) fails as an informational document because it does not state how much air pollution was offset between 2016 and 2020 under MM 4.3-8 and whether this equals the amount of Project-generated emissions that MM 4.3-8 was supposed to offset as a consequence of the number of permits issued.

The information gleaned from implementation of the 2015 Ordinance does not constitute a “changed circumstance” or “new information” requiring supplemental environmental review under CEQA. A supplemental EIR is not required unless:

- substantial changes to the proposed project, or to the circumstances under which the project is undertaken, will require major revisions of the prior EIR due to new or substantially more severe environmental impacts; or
- new information of substantial importance is available, which was not known and could not have been known when the prior EIR was certified, shows that the project will have new or substantially more severe environmental impacts; or new information of substantial importance is available, which was not known and could not have been known when the prior EIR was certified, shows that mitigation measures or alternatives previously found infeasible, or considerably different from those analyzed in the prior EIR, would substantially reduce significant impacts, but the project proponents decline to adopt the mitigation measure or alternative. Cal. Pub. Res. Code § 21166; CEQA Guidelines § 15162.

The provisions governing supplemental CEQA review “are designed to balance CEQA’s central purpose of promoting consideration of the environmental consequences of public decisions with interests in finality and efficiency.” *Friends of College of San Mateo Gardens v. San Mateo County Community College Dist.* (2016) 1 Cal.5th 937, 949. The information regarding implementation of MM 4.3-8 and the OG-ERA now incorporated into the SREIR (October 2020) does not constitute “new information” because it does not demonstrate that the Project will have new or substantially more severe environmental impacts, or that mitigation measures previously found infeasible or considerably different from those analyzed in the 2015 FEIR would substantially reduce significant impacts. MM 4.3-8 requires applicants to pay an air emission mitigation fee under the OG-ERA or, alternatively, to undertake direct emission reductions to fully offset new emission increases from the Project. See SREIR (October 2020), Vol. 1, at 4.3-164–165; see also Response to Comment 0009-16. With implementation of this mitigation, the SREIR finds this impact significant and unavoidable at both the project and cumulative levels. The information regarding implementation of MM 4.3-8 and the OG-ERA since 2015 does not suggest that these impacts will be substantially more severe than as disclosed in the 2015 FEIR. Nothing in CEQA requires the SREIR to explain the details of how a fee-based mitigation measure will achieve mitigation. Please see Responses to Comments 0009-17 through 0009-20. The Court of Appeal also did not mandate this in its decision. Please see Responses to Comments 0009-17 through 0009-20. As the Supreme Court observed in *City of Marina v. Board of Trustees of California State University*, “[a]ll that is required by CEQA is that there be a reasonable plan for mitigation...we must presume and expect that the County will comply with its own ordinances, and spend the fees it collects on the appropriate improvements....” (2006) 39 Cal.4th 341, 365, quoting *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 140–141 (fees sufficient though specific projects and timing left up to county). The SJVAPCD can be relied on by the County to fulfill its contractual obligations under the OG-ERA and implement the OG-ERA in a manner consistent with the contract’s requirements. See *Center for Biological Diversity et al. v. Kern County*, Fifth Appellate District, Case No. F061908.

The SREIR discusses historic spending and fee collection under MM 4.3-8 and the OG-ERA. See SREIR (October 2020), Vol. 1, at 4.3-136–139. Table 4.3-DD shows total emission reductions achieved from all ERAs funded by the SJVAPCD. The SJVAPCD chooses how to report the emission reduction data in its annual reports. The SJVAPCD has disclosed the total annual emissions reduced by Voluntary Emission Reduction Agreements (VERAs)/Indirect Source Rules (ISRs) in the valley in its annual reports. The SJVAPCD reports annually to the County on the total mitigation funds received from the County under the OG-ERA and the mitigation funds spent or encumbered by the SJVAPCD. That information is shown in the table below by calendar year.

	Mitigation Funds Received from Kern County	Mitigation Funds Spent or Encumbered by SJVAPCD
2017	\$14,296,376.04	\$3,741,691.62
2018	\$27,766,203.05	\$14,280,934.41
2019	\$42,505,082.72	\$5,690,795.15
2020	-\$8,448,013.60	\$46,598,663.46
TOTAL	\$76,119,648.21	\$70,312,084.64

These values are slightly different than those reported in SREIR Table 4.3-BB because the SJVAPCD ISR Annual Reports report on a July 1 to June 30 year so that the row representing reporting year 2017 in Table 4.3-BB is actually fees received from July 1, 2016, through June 30, 2017, whereas this table reports on a calendar year. However, the table shows that, as of the end of 2020, 92 percent of the total OG-ERA mitigation fees received by the SJVAPCD from 2017 to 2020 had been either spent or encumbered. The SJVAPCD also reports annually on the total emissions reductions achieved to date by the OG-ERA.

Through the end of 2019, the SJVAPCD reports that emission reduction projects implemented under the OG-ERA have achieved 2,232 tons of reductions of nitrogen oxides (NO_x), 434 tons of reductions of particulate matter (PM), and 207 tons of reductions of reactive organic gases (ROG). Applicant emission reduction projects have achieved 19 tons of reductions of NO_x, 1 ton of reductions of PM, and no tons of reductions of ROG. This totals 2,251 tons of NO_x reductions, 435 tons of PM reductions, and 207 tons of ROG reductions through the end of 2019. This is over 70 percent of total emissions achieved from all emission projects funded by mitigation fees in the SJVAPCD for each pollutant listed. Again, these values are slightly different than those reported in SREIR Table 4.3-DD due to the fact that the SJVAPCD ISR Annual Reports report on a July 1 to June 30, whereas this information is based on a calendar year.

The fact that the OG-ERA will result in more emission reductions than is required to reduce emissions from project activities to net zero further supports its efficacy. A large percentage of project emissions result from construction activities, including well drilling, and these emissions are temporary. The emission reduction projects funded by OG-ERA fees result in the permanent shutdown of emitting equipment and the permanent removal of those emissions from the San Joaquin Air Basin (SJVAB). The OG-ERA thus results in higher emission reductions than the emissions that occur in just one year from the Project and for which fees are paid.

The 2015 FEIR and the SREIR also take a conservative approach with respect to emissions from drilling and operating future wells by using 2012 oil and gas drilling and operations activity levels as the baseline for measuring impacts. Although the total number of active wells is expected to increase over time from the 2012 baseline activities, CEQA would have allowed the SREIR to subtract baseline activity levels from the total number of projected wells to determine the incremental increase attributed to the Project. The 2015 FEIR and the SREIR do not consider that increment. Instead, the analysis treats every future well drilled and operated as a new well for which emissions will be mitigated via the OG-ERA. In other words, emissions from well drilling and operations that would otherwise have been subtracted as baseline activities are considered new impacts resulting from the Project and will be mitigated accordingly. This goes further than CEQA requires and is a particularly conservative approach considering that oil well drilling and operation in the County is ongoing and has occurred for many years.

0061-10

The comment states that MM 4.3-8 and the OG-ERA have fallen short in achieving mitigation to date. The comment then compares the total estimated average per-well emissions by year in SREIR Table 4.3-32 with the reductions reported in the SJVAPCD's Annual Reports and shown in Table SREIR 4.3-DD.

SREIR Table 4.3-32 forms the basis of the calculation of OG-ERA emissions and fees and represents estimates of the average emissions per new well over the life of the Project. See SREIR (October 2020), Vol. 1, at 4.3-133. Table 4.3-32 does not refine emissions by well depth or Subarea to determine an actual emissions estimate for a particular well, as the OG-ERA mitigation fee table does. To determine the OG-ERA mitigation fee, Table 4.3-32 was refined by Subarea and well depth to determine emissions per well depth per Subarea on which to base the OG-ERA fee for each specific well to be drilled. The comment erroneously compares theoretical emissions of an "average" well with the emissions reductions achieved to offset emissions expected from specific wells that have been permitted since the Ordinance was adopted. It is not accurate to compare the average emission values in Table 4.3-32 (which are emissions values for a theoretical "average well") with emissions achieved to offset actual wells of certain depths in certain Subareas. There is no evidence that the wells permitted since the Ordinance adoption all represent an "average" well represented by the per-well projected emissions in Table 4.3-32. While Table 4.3-32 states that an average well would have emissions between 2.08 to 3.46 tons per year (which includes a cumulative factor to account for the existing unmitigated well operations), the emissions predicted in the OG-ERA per-well emission schedule vary greatly by well depth and Subarea. For example, wells drilled in the Eastern Subarea have considerably lower emissions than those drilled in the Western or Central Subareas. See SREIR (October 2020), Vol. 2, Appendix C.

In addition, many of the emission reductions to be achieved by encumbered funds under the OG-ERA have not yet been reported by the SJVAPCD in its Annual Reports as the funds have been encumbered but projects not yet implemented. These reductions would not be captured by the total emission reductions shown in Table 4.3-DD. The comment also incorrectly assumes that every permit issued for "Conformity Review" is to drill a new well. This is not the case. Conformity review permits are issued for new wells, rework of existing wells, and activities regulated by Senate Bill (SB) 4. It is not clear how many of the total 5,880 Conformity Review Permits mentioned in the comment were for the drilling of new wells as opposed to other activities. Finally, Table 4.3-DD only lists emission reductions from NO_x and particulate matter up to 10 microns in diameter (PM₁₀), while the per-well projected emission values in Table 4.3-32 include NO_x, ROG, and PM₁₀. For these reasons, the comment's comparison between the emission average in Table 4.3-32 and the emissions in Table 4.3-DD is not accurate. Please see Response to Comment 0061-9 for an explanation of the emission reduction achieved to date under the OG-ERA.

0061-11

The comment states that the SREIR must disclose how many operators, if any, have undertaken direct emission reductions rather than pay the OG-ERA mitigation fee under MM 4.3-8. All applicants have paid air quality mitigation fees under the OG-ERA to this point. One applicant has undertaken direct emission reductions rather than pay the OG-ERA fee. These reductions were authorized to be submitted by the County staff in a report and overseen and verified by the SJVAPCD before acceptance of the credits for permitting. The approved project resulted in 19 tons of NO_x reductions and 1 ton of PM reductions, according to the SJVAPCD.

0061-12

The SREIR does not state that all emissions are due to construction activities. The quote cited by the comment states that “many Project emissions result from construction activities...” Nothing about this quote is misleading or incorrect. As explained in the SREIR (October 2020), many of the emissions that will be offset by the OG-ERA are temporary construction emissions, while the OG-ERA emission reductions are permanent. See SREIR (October 2020), Vol. 1, at 4.3-141–142. In some cases, the OG-ERA emission reduction projects may result in higher emission reductions than the emissions that occur in just one year from Project activities and are paid for by mitigation fees. In addition, the SREIR does not subtract baseline activity levels from the total number of projected wells to determine the incremental increase in emissions from the Project, which further contributes to the OG-ERA’s conservative nature and ability to fully offset Project emissions.

The comment also states that the OG-ERA will not establish permanent emission reductions because the SJVAPCD frequently uses mitigation fees to fund “short-lived engine replacements for mobile sources.” An engine replacement is a permanent emission reduction. Funding a change from a higher emitting to a lower emitting engine or vehicle permanently removes those emissions from the air basin. These types of projects typically remove engines that would no longer be available for purchase as they are not at current required emission levels and thus the reduced emissions are never again released in the basin. According to the SJVAPCD, “Replacing older, dirtier vehicles with new vehicles provides permanent emission reductions and accelerates the introduction of the cleanest technologies”) (SJVAPCD 2016, p.D-6).

0061-13

The comment restates the request for a mechanism that ties the rate of permitting to mitigation under the OG-ERA and for a mandate of quarterly reporting by the County and SJVAPCD on specific issues related to implementation of MM 4.3-8 and the OG-ERA.

Please see Responses to Comments 0009-17 through 0009-20, and 0061-5 through 0061-12. For responses to the Pless Report, please see Responses to Comments 0061-115 through 0061-136. For responses to the Fox Report, please see Responses to Comments 0061-137 through 0061-184.

0061-14

The comment states that MM 4.3-8 and the OG-ERA should prioritize emission reduction projects that provide community benefits, including by requiring that emission reduction projects be implemented in Kern County rather than elsewhere.

Please see Response to Comment 0009-24, which explains the prioritization of emission reduction projects in Kern County under the OG-ERA. The comment also states that the SREIR (October 2020) should disclose where OG-ERA funds have been spent since the Ordinance was adopted in 2015. Information from the SJVAPCD shows that approximately 91 percent of the emission reduction projects implemented with OG-ERA funds since the Ordinance was adopted were in Kern County. There were approximately 522 emission reduction projects implemented with OG-ERA fees, 475 in Kern County, 32 in Tulare County, 10 in Merced County, four in San Joaquin County, and one in Stanislaus County. Thus, the overwhelming number of emission reduction projects being funded by the OG-ERA are occurring in Kern County. The comment claims that information about where emission reduction projects are being implemented and where OG-ERA funds have been spent since the Ordinance was adopted is significant new information. The information gleaned from implementation of the 2015 Ordinance and the OG-ERA does not constitute a “changed circumstance” or “new information” requiring supplemental environmental review under CEQA. A supplemental EIR is not required unless:

- substantial changes to the proposed project, or to the circumstances under which the project is undertaken, will require major revisions of the prior EIR due to new or substantially more severe environmental impacts; or
- new information of substantial importance is available, which was not known and could not have been known when the prior EIR was certified, shows that the project will have new or substantially more severe environmental impacts;

or new information of substantial importance is available, which was not known and could not have been known when the prior EIR was certified, shows that mitigation measures or alternatives previously found infeasible, or considerably different from those analyzed in the prior EIR, would substantially reduce significant impacts, but the project proponents decline to adopt the mitigation measure or alternative. Cal. Pub. Res. Code § 21166; CEQA Guidelines § 15162.

The provisions governing supplemental CEQA review “are designed to balance CEQA’s central purpose of promoting consideration of the environmental consequences of public decisions with interests in finality and efficiency.” *Friends of College of San Mateo Gardens v. San Mateo County Community College Dist.* (2016) 1 Cal.5th 937, 949. The information regarding where emission reduction projects funded by the OG-ERA have been located does not constitute “new information” as it does not demonstrate that the Project will have new or substantially more severe environmental impacts or that mitigation measures previously found infeasible or considerably different from those analyzed in the 2015 FEIR would substantially reduce significant impacts. MM 4.3-8 requires applicants to pay an air emission mitigation fee under the OG-ERA or, alternatively, to undertake direct emission reductions, to fully offset new emission increases from the Project. See SREIR (October 2020), Vol. 1, at 4.3-164–165; see also Response to Comment 0009-16. Even with implementation of this mitigation, the SREIR finds this impact significant and unavoidable at both the project and cumulative levels. The information regarding implementation of MM 4.3-8 and the OG-ERA since 2015 does not suggest that these impacts will be substantially more severe than as disclosed in the 2015 FEIR. In addition, MM 4.3-8 and the OG-ERA do not rely on emission reduction projects being implemented in particular locations. What matters for purposes of MM 4.3-8 is that emission reductions are achieved in the SJVAB in numbers sufficient to offset Project emissions, not whether those emission reduction projects are in Kern County or elsewhere in the SJVAB. However, as explained above, the vast majority of emission reduction projects have occurred in Kern County.

0061-15

The comment states that the SREIR (October 2020) does not address the deficiencies in the treatment of PM_{2.5} highlighted by the Court of Appeal’s decision.

Please see Responses to Comments 0009-25 through 0009-29 and 0009-145 through 0009-148 regarding PM_{2.5} emissions. For responses to the Pless Report, please see Responses to Comments 0061-115 through 0061-136.

0061-16

This comment summarizes the setback distances from the Ordinance and notes differences from the 2015 Ordinance.

The comment is correct that the setback distances have changed. The comment states that the SREIR (October 2020) does not support the changed setback distances. For a discussion of the setbacks and mitigation triggering distances, please see GR 5 – Setback and Mitigation Measure Trigger Distances. The setback distances described in the current (pre-Project) zoning code Chapters 19.98 – Oil and Gas Activities, 19.48 Drilling Island (DI) District and 19.66 Petroleum (PE) District were established based on generally accepted standards of appropriate distances necessary to reduce impacts from oil and gas operations. In revising the Ordinance, detailed noise studies were prepared to assess the actual effects of oil and gas development under “worst case” conservative assumptions. This scientific assessment demonstrated that at 210 feet, the operational noise impacts from production are mitigated to less than the County’s absolute General Plan noise limit. The SREIR requires larger distances or a combination of larger distances and noise and/or emission reduction measures to ensure that the proposed activity can achieve the County’s noise and air quality standards. The analysis conducted by the County’s experts does not support the requirement for a larger setback from schools. Nevertheless, due to public sensitivity to oil and gas development in proximity to schools, the Ordinance has been revised to maintain the current 300-foot setback from the property line of a public or private school.

The comment also states that the Ordinance reduces the setback for PE or DI specialty districts. This is incorrect. The current Chapter 19.66 (Petroleum Extraction (PE) Combining District) includes standards applicable to the PE district to establish a two-track permitting system wherein wells drilled more than 300 feet away from a dwelling were permitted as of right, and wells drilled less than 300 feet away were permitted with a Conditional Use Permit (CUP). While Table 3-3 in the SREIR indicates that the PE District uses a 300-foot setback for dwellings, note (h) explains that this is a standard only to be permitted by-right. See SREIR (October 2020), Vol. 1, at 3-17. The PE District does not in fact establish a more restrictive setback. The development standards applicable to the DI district refer to the current Chapter 19.98. The comment is correct that Table 3-3 incorrectly states that the setback distance from dwellings required in the DI District is 300 feet. This table has been updated to replace the incorrect setback value of 300 feet with the correct value of 150 feet, as shown in Section 7.3.1, Errata, of this

chapter. The comment states that the SREIR must address the scientific evidence offered in other comments in support of a 2,500-foot setback. Please see Responses to Comments 0009-57 through 0009-89.

0061-17

The comment states that MM 4.3-5 is invalid and based on inadequate HRAs.

Please see GR-6 – Health Risk Assessments and Responses to Comments 0008-27 and 0008-58 through 0008-62 for an explanation of the validity of the single-well and multi-well HRAs. Please also see Appendix B of the SREIR for the full HRAs and for a technical report that reviews changes to HRA Guidelines since 2015 and finds that new HRAs are not required. See SREIR (October 2020), Vol 2, Appendix B. The comment states that the changes in MM 4.3-5 are not shown as italicized and underlined in the SREIR (October 2020). For clarity, MM 4.3-5 is reproduced below with changes from the SREIR (August 2020) to the SREIR (October 2020) in italics and underlined. Additional clarifications have been made in Response to Comment 0009-13 and are shown in bold/italics.

MM 4.3-5 The Site Plan Application *for an Oil and Gas Conformity Review* shall include a Site Vicinity Figure showing the location of any sensitive receptor(s) within ~~34,000~~ feet of the construction site (potential impact area) for the proposed new well or other ancillary facility or equipment (excluding pipelines).

- a. If there are no sensitive receptors within this potential impact area, then no construction mitigation measures shall be required *and the statement shall be placed as a note on the site plan.*
- b. *The well site and nearest property line of a sensitive receptor shall be permitted using both maps and coordinates on the map.* If there are sensitive receptors within the potential impact area, then additional information must be provided showing the ~~setback~~ *distance* from the closest edge of the well pad to the property line of the nearest sensitive receptor. The minimum distances shall be as follows:

Well Depth (Feet)	Minimum <i>Mitigation Trigger</i> Setback Distance from Well Site to Adjacent Property Line of an Existing Sensitive Receptor (Feet)
Western Subarea	
10,000	367
5,000	116
2,000	NA
Central Subarea	
10,000	367
5,000	116
2,000	NA
Eastern Subarea	
10,000	296
5,000	NA
2,000	NA

- c. If the ~~well is located within the above~~ distances *set forth in (b), above cannot be met*, and for existing wells that are subject to an Oil and Gas Conformity Review for redrilling or other permitted activities, the Applicant shall provide a site-specific ~~or other~~ risk assessment to the San Joaquin Valley Air Pollution Control District, which ~~may~~ *shall* include implementation of one or more of the following risk minimization measures, or other such measures that are demonstrated by the Applicant to the San Joaquin Valley Air Pollution Control District, to achieve a level of risk less than the threshold risk level. ~~Written, and shall provide~~ *confirmation shall be provided* from the San Joaquin Valley Air Pollution Control District that the activity that is the subject of the application will not exceed the risk threshold.

The following is a list of accepted risk minimization measures that shall be considered for inclusion by the San Joaquin Valley Air Pollution Control District:

1. Placement of engines in the potential impact area away from the sensitive receptors.
2. Utilize directional drilling to locate rig away further from the sensitive receptor(s).
3. Use of late-model engines, low-emission diesel products, alternative cleaner fuels (e.g., natural gas or liquefied petroleum gas), engine retrofit technology, add-on devices such as diesel particulate filters or oxidation catalyst, and/or other options as such become available to reduce emissions from off-road and other equipment.
4. Utilize electricity line power if available or deploy mobile solar panels with batteries for electricity.
5. Shutdown all equipment when not in use, and otherwise minimize engine idling by limiting idling to 15 minutes.
6. Use of automatic rigs.
7. Written confirmation from the identified sensitive receptor or receptors that the residents, business, church, or school agree to voluntary relocation or restrictions on receptor activities for the duration of construction activities with a specific timeframe for completion and details of any agreement. Assist and pay to relocate residents to temporary lodging during well construction, drilling, and completion activities, if such residents voluntarily agree to such relocation.

The comment states that, because the language in the mitigation measure now limits the measure's scope to "Site Plan Application for an Oil and Gas Conformity Review" rather than "Site Plan Application," the measure excludes CUPs and Minor Activity Reviews from having to comply with MM 4.3-5. Minor Activity Reviews are not available for drilling and completion activities. See SREIR (October 2020), Vol. 1, Chapter 3, Attachment A, Zoning Ordinance Amendments, at 6–10. These activities must undergo an Oil and Gas Conformity Review, in which case MM 4.3-5 would apply. The trigger distances in MM 4.3-5 are derived from the single-well HRAs, which assessed well drilling activities. See GR-6 – Health Risk Assessments. The driver for health risk from Project activities is overwhelmingly from diesel particulate matter (DPM) emissions, which result from well drilling. The health risk from DPM emissions is what led to the trigger distances in MM 4.3-5. Thus, MM 4.3-5 is inapplicable to activities that do not involve well drilling and completion, such as the activities that can be approved via Minor Activity Reviews.

As to CUPs, any CUP would be a discretionary decision and would be subject to CEQA. The County would review and determine whether MM 4.3-5 or the trigger distances therein, or another setback or trigger distance, should apply to the project. The term "Site Plan Application" is the same as the site plan required of all activities that are permitted under Title 19 for either for a ministerial or a discretionary project that includes a CUP. Even a building permit requires a site plan to show the location of the building for zoning review even if there is not permit required for construction. Thus, the change in the mitigation measure does not limit its applicability to activities that require a CUP under the Ordinance, as those were not covered under the previous language in MM 4.3-5, but merely clarifies its applicability.

The comment also states that it is unclear whether the terms "well site" and "well pad" are interchangeable and that the mitigation trigger distances should be measured from the property line of the sensitive receptor to the closest edge of the operator's construction site. The terms are interchangeable. The mitigation measure requires the applicant to map the entire well site and the nearest property line of the sensitive receptor. The distances shown in the table in MM 4.3-5 are measured from the edge of the well pad closest to the sensitive receptor's property line. This results in the shortest distance between operational equipment and the sensitive receptor. The comment has not identified anything contradictory in the mitigation measure.

0061-18

The comment states that the alternative risk minimization measures in MM 4.3-5(c) have been "watered down" from the SREIR (August 2020).

The SREIR (August 2020) stated that operators must assist and pay to relocate residents to temporary lodging during well construction, drilling, and completion activities if residents agree to the relocation. The mitigation measure now allows operators to provide written confirmation that the identified sensitive receptors agree to voluntary relocation. This provides the sensitive receptor with the opportunity to require the operator to pay for voluntary relocation in order to obtain the agreement to relocate. It also provides more flexibility for sensitive receptors who may not want to relocate but instead

would prefer to limit their activities for the duration of drilling to certain days/times to avoid health risks. This provides more flexibility for both operators and sensitive receptors while maintaining the ability of sensitive receptors to require operators to pay for voluntary relocation. If a sensitive receptor wants to temporarily relocate but will not do without compensation, then that receptor would refuse to sign the agreement unless and until the operator agreed to pay costs for relocation.

The comment also states that MM 4.3-5 does not state that operators are required to meet the specified distance. MM 4.3-5 requires that operators either be located outside the mitigation trigger distances in subsection (b), or implement one or more of the risk minimization measures in subsection (c) in a way that demonstrates to the SJVAPCD that the health risk threshold of 20 in one million will not be exceeded by the operations. In either event, health risk from the Project activities is reduced to below a level of significance. Either by complying with the setback distances established by the Project-specific single-well HRAs, or by instituting well-specific mitigation measures that the SJVAPCD will verify, Project impacts are reduced below a level of significance. MM 4.3-5 states, as the comment requests, that all operators are required to either locate wells to meet the setback distance or adopt some or all of the listed risk minimization measures to meet the SJVAPCD's risk threshold. Finally, the comment states that the analysis of a 2,500-foot setback remains inadequate and that setbacks should be increased. Please see GR-5 – Setback and Mitigation Measure Trigger Distances, GR-6 – Health Risk Assessments, and Responses to Comments 0014-2 through 0014-8, 0014-11 through 0014-14, 0008-27, 0008-58 through 0008-62, 0009-55 through 0009-89, 0009-153 through 0009-159, 0061-17, 0061-58 through 0061-96, and 0061-84 through 0061-86.

0061-19

The comment states that the SREIR (October 2020) fails to analyze compliance with a Kern County General Plan standard regarding interior noise.

The comment is incorrect. The SREIR (October 2020) also confirms that by controlling Project noise outdoors, indoor noise increases are also moderated because typical construction complying with building code standards can be expected to provide an outdoor-to-indoor noise level reduction of at least 20 decibels (dB). By complying with the Noise Standards, sensitive receptors should not experience a significant interior increase. As explained by the County's noise expert:

The County's exterior and interior noise standards are consistent. When sound is limited to 65 dB DNL [day-night average sound level] at the exterior of a structure, the interior noise levels are typically limited to 45 dB DNL, typical construction complying with California building code standards and energy efficiency standards (Title 24) can be expected to provide an outdoor-to-indoor noise level reduction of at least 20 dB. This is the lower end of the national average of outdoor-to-indoor noise reduction. Demonstration of project compliance with the exterior noise level criterion would therefore ensure project compliance with the interior noise level criterion of 45 dB DNL. SREIR (October 2020), Vol. 2, Appendix E, at 4.

Please also see the Federal Highway Administration's *Highway Traffic Noise: Analysis and Abatement Policy and Guidance*, which states that if the exterior area can be protected, the interior will also be protected (FHWA 2011), and the U.S. Department of Housing and Urban Development, Office of Community Planning and Development's *Noise Guidebook*, which states: "It is assumed that with standard construction any building will provide sufficient attenuation so that if the exterior level is 65 L_{dn} or less, the interior level will be 45 L_{dn} or less" (HUD 2009, p.6). The SREIR contains a thorough and appropriate discussion of the Project's potential effect on interior noise levels.

0061-20

The comment states that the SREIR (October 2020) cannot rely on typical attenuation of noise due to the unique character of oil and gas construction noise.

Oil and gas construction noise is unique among other construction noise in the County in that it can occur 24 hours a day and at increased heights due to the drill rig. These factors led to the inclusion of a Noise Standard in the SREIR (October 2020) that is unique to oil and gas construction: the incremental component of the Noise Standard. No other type of construction in the County is required to comply with an incremental noise standard. While the unique characteristics of oil and gas construction may require the applicant to implement additional reduction measures to achieve the Noise Standard, they do not change the physics of noise attenuation itself. If the applicant's activity can achieve the Noise Standard limiting exterior noise to 65 dB, the Kern County General Plan standard of 45 dB for interior noise will also be achieved. Please see Response to Comment 0061-19.

The comment also states that the SREIR (October 2020) cannot assume a uniform reduction from outdoor to indoor noise because of site-specific factors. These site-specific factors are required to be assessed in the preparation of an Acoustic Noise

Reduction Report. While these site-specific factors may require the applicant to implement additional reduction measures to achieve the Noise Standard, they also do not change the physics of noise attenuation itself.

The comment also states that a separate analysis of interior noise should be prepared as part of the SREIR (October 2020). For the reasons explained above, such an analysis is unnecessary. The SREIR contains a thorough and appropriate discussion of the Project's potential effect on interior noise levels.

0061-21

The comment states that the SREIR (October 2020) does not adequately address the noise studies provided by other comments.

For a detailed discussion of the assessment of various studies regarding noise effects of oil and gas activities, please see Response to Comment 0009-75; see also SREIR (October 2020), Vol. 1, at 4.12-8–10 and SREIR (October 2020), Vol. 2, Appendix E at 2-4.

The comment specifically states that the SREIR (October 2020) ignored the findings in Hays (2017) that hydraulic fracturing correlates with increases in annoyance, sleep disturbance, and the risk of cardiovascular disease. The SREIR (October 2020) discloses that increased noise can lead to physiological and physical effects (SREIR [October 2020], Vol. 1, at 4.12-5–4.12-6); discloses that studies from other jurisdictions indicate that noise from oil and gas activities may be correlated with adverse health outcomes (SREIR [October 2020], Vol. 1, at 4.12-8–10); and requires mitigation to achieve the Noise Standard.

The comment also states that the assessment of various studies in the SREIR (October 2020) is inaccurate because it relies on the assumption that California formations are shallower than formations in the jurisdictions studied, leading to shorter drilling times and exposures. For a response regarding the characteristics of California's formations, please see Responses to Comments 0061-73 through 0061-74.

0061-22

The comment states its general support for revisions to MM 4.12-1 and requests that it be applicable to applicants that seek a CUP.

A CUP is a discretionary permit process that allows the County to establish site-specific conditions and, under appropriate circumstances, even deny an application. This discretionary process triggers further environmental review under CEQA, as well as public notice and hearing requirements. See Kern County Zoning Ordinance § 19.98.085; see also Kern County Zoning Ordinance § 19.104 and MM 4.12-2(1), SREIR (October 2020), Vol. 1, at 4.12-54–56. The mitigation measures contained in the SREIR (October 2020) may be imposed on activities subject to the CUP process or, depending on the environmental review under CEQA and substantial evidence placed in record, may be waived or modified.

0061-23

The comment requests that applicants be required to demonstrate that the mitigation triggering distances cannot be met before being allowed to proceed with an Acoustic Noise Reduction Report to demonstrate compliance with the Noise Standard.

Because the Noise Standard will be met either through achievement of the triggering distance or through an Acoustic Noise Reduction Report, the proposed requirement would not materially reduce any effect. The expense of preparing an Acoustic Noise Reduction Report, which includes multiple 24-hour ambient measurements; the implementation of reduction measures; and periodic monitoring will incentivize compliance with the triggering distances where feasible.

0061-24

The comment requests that MM 4.12-1 be revised to require the applicant to pay the relocation expenses of the sensitive receptor.

The decision of the occupants of a sensitive receptor to relocate during the period of construction is voluntary, and will be a matter of private agreement between the occupants and the applicant. Feasible mitigation has been identified that will meet the standards for noise reduction instead of relocation.

0061-25

The comment states that the County should clarify that the triggering distances or reduction measures are achieved prior to the beginning of any proposed construction activity.

A ministerial permit will not be issued under the Ordinance unless the applicant can achieve the mitigation triggering distances or prepares an Acoustic Noise Reduction Report. MM 4.12-1 requires that the applicant measure the effectiveness of any necessary noise reduction measures 24 hours after the commencement of drilling or rework activities. While the Acoustic Noise Reduction Report contains the applicant's assessment of what is necessary to achieve the required reductions, this assessment is also verified once construction begins. It is not possible to accurately verify effectiveness before construction begins. If the measurement does not show that the required reduction has been achieved, additional measures must be proposed and installed or construction activities cannot continue.

0061-26

The comment summarizes changes to MM 4.12-2 and requests clarification regarding the source of the mitigation screening contours. Specifically, the comment asks the time period utilized for calculating the contour.

The contour was calculated based on the equivalent continuous sound pressure level (L_{eq}) metric, which is the average noise level, on an equal-energy basis, for a stated period of time. In the case of the contours for the mitigation measures, the L_{eq} is based on an artificial worst-case scenario. The contours were calculated using the measurements and assumptions from the 2015 Environmental Noise Assessment, in which measurements were taken from four different directions around electric- and diesel-powered production equipment operating at maximum volume. See SREIR (October 2020), Vol. 5, Appendix V-1. The noise from the loudest direction was used as the basis for modeling and was assumed to occur at that maximum volume 24 hours a day. Contours were generated using the SoundPLAN acoustic model with assumed atmospheric and topographic conditions conducive to the greatest sound propagation, which led to an over-prediction of noise levels by up to 6 dB. Because the analysis assumes that the maximum volume is present 24 hours a day as measured from the loudest direction under conditions leading to the greatest propagation, the modeled L_{eq} contour is uniform over time. The comment states that the time period used to calculate the L_{eq} is significant to the extent it differs from the day-night average sound level (DNL). Please see Response to Comment 0059-50 on the propriety of using the 49 dB L_{eq} contour for the mitigation triggering distances. In light of the conservative assumptions used in modeling the propagation of Project noise and the use of the lowest measured ambient level, the use of the L_{eq} metric will not lead to the exceedances predicted by this comment. If a sensitive receptor is located within the mitigation triggering distance, the applicant is then required to reduce the activity noise to achieve the applicable DNL standard.

0061-27

The comment states that the triggering distances established in MM 4.12-2 conflict with the distances in MM 4.12-1.

Please see GR-5 – Setback and Mitigation Measure Trigger Distances. Operational activities are much quieter than construction activities and therefore require shorter triggering distances than those necessary for construction activities. It is theoretically possible that an applicant may reduce construction noise, pursuant to MM 4.12-1, such that the well may be located closer than 650 feet to the property line of a sensitive receptor—for example, by negotiating a temporary voluntary relocation of occupants. An applicant may still be required to implement permanent noise reduction measures to address operational noise.

0061-28

The comment states that the SREIR does not accurately describe existing conditions regarding the generation and use of produced water, including the volume of produced water being used for irrigation and domestic uses.

To the extent the comment is aimed at potential impacts not directly associated with water supply impacts, such as potential water quality impacts from produced water reuse, the SREIR is not required to modify the analysis of these issues. Please see GR-1 – Beyond the Scope of the SREIR. The Court of Appeal issued a decision upholding the 2015 FEIR against all claims except for five areas: (1) mitigation of water supply impacts; (2) impacts from $PM_{2.5}$ emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well Health Risk Assessment. Impacts other than water supply related to the generation and use of produced water are not among the five topics required to be addressed in the SREIR. Slip Opinion, at p. 140. The Slip Opinion upheld the environmental baseline in the 2015 FEIR and noted that the formation of the first Groundwater Sustainability Plans (GSPs) for applicable groundwater basins in the Project Area as

required under Sustainable Groundwater Management Act (SGMA) constituted new information. Section XII.E.1 of the Slip Opinion discussed the inclusion of this new information in the water supply baseline as follows:

The EIR's analysis of water supply impacts concluded the implementation of SGMA created uncertainty in predicting the available water supplies for the project area. Under SGMA, one or more local groundwater sustainability agencies must be formed to cover the Kern County subbasin. Those agencies have been formed and they may have released a groundwater sustainability plan, or a coordinated set of plans, by January 31, 2020. The formation of these agencies constitutes significant new information as will the plan or plans they adopt. The availability of information about new wells in critically overdrafted groundwater basins was increased by legislation adopted in 2017 and operative through January 30, 2020. Accordingly, the information about groundwater supply and use has increased since the preparation of the draft EIR and that information will have lessened the uncertainty described in the draft EIR. Consequently, for a revised EIR to provide a meaningful analysis of the project area's water supply that is useful to the public and decisionmakers evaluating whether to reapprove the Ordinance, the analysis of water supply must be brought up to date. Slip Opinion, at p. 146–147.

See Response to Comment 0008-16. As required by the Slip Opinion, Appendix D of the SREIR (October 2020) provides a comprehensive discussion of all groundwater basins or subbasins delineated by the state Department of Water Resources (DWR) in the Project Area, all Groundwater Management Agencies formed under the SGMA, and the analysis of potential impacts from oil and gas operations over the 50-year planning and implementation period required by the SGMA in all of the GSPs and Management Area Plans adopted within the Project Area. See SREIR (October 2020), Vol. 1, at 4.9-37–60, 4.17-82–92, 4.17-96–97, and SREIR (October 2020), Vol. 2, Appendix D, at 8–19, 25–53. The SREIR also discusses 2016–2019 hydrological and groundwater conditions, and water year 2019 demand and supply in the Kern County Subbasin publicly reported by the Groundwater Sustainability Agencies (GSAs) in accordance with:

- The SGMA;
- The coordinated Kern County Subbasin historical water budget 2020–2070 demand and supply projections developed over the SGMA's 50-year planning and implementation period by the GSAs, as required;
- A summary of available quarterly oil and gas water use reports for 2015 to 2017 published by the California Geologic Energy Management Division (CalGEM); and
- Updated information concerning oil and gas industry conditions in Kern County.
See SREIR (October 2020), Vol. 1, at 4.9-10–24, 4.9-37–60, 4.9-160, 4.17-2–4, 4.17-30–42, and 4.17-52–57.

The SREIR discusses regulatory updates related to oil and gas activities related to the SGMA, including the status of the state's implementation of the underground injection program (UIC), the Food Safety Project initiated in 2015 by the Central Valley Regional Water Quality Control Board (CVRWQCB) to monitor and assess the use of produced water for crop irrigation, the issuance of Waste Discharge Requirements (WDRs) by the CVRWQCB for the reuse of treated produced water for irrigation, and the adoption of SGMA emergency regulations in 2016 by the DWR. See SREIR (October 2020), Vol. 1, at 4.9-151–165.

The SREIR states that the total amount of produced water from oil and gas activities in the Project Area would increase from 234,959 acre-feet per year (AFY) in 2012, the baseline year, to approximately 321,894 AFY by 2035. Produced water reuse for oil and gas operations would increase from 88,812 AFY in 2012 to 121,412 AFY in 2035. Produced water reuse for other purposes, such as potential irrigation, and disposal, primarily by reinjection into oil-bearing formations from which the produced water was extracted, would increase from 144,794 AFY in 2012 to 167,711 AFY in 2035. See SREIR (October 2020), Vol. 1, Table 4.9-27, at 4.9-178–179. None of these projections are among the five topics required to be addressed in the SREIR, and the SGMA and groundwater information reviewed in the SREIR in accordance with the Slip Opinion provide no new information or substantial evidence that would require modifications of these projections. The available information summarized in the CalGEM quarterly produced water reports in the SREIR, which indicates that statewide produced water generation in 2015 to 2017 averaged about 100,000 acre-feet per quarter, is generally consistent with the projections considering that the CalGEM reports cover about 90 percent of the state and exclude confidential company data, and Kern County accounts for about 80 percent of statewide production. See SREIR (October 2020), Vol. 1, at 4.17-52–55, 4.17-81.

Almost all of the GSPs and Management Area Plans discussed in the SREIR explicitly exclude oil and gas operational areas and exempted aquifers under the UIC program from SGMA-regulated groundwater basins. Several of the plans identify the potential use of treated and/or blended oil and gas produced water as a potential source of new imported water that would increase available supplies for agricultural irrigation purposes and reduce potential groundwater demand over time. The GSPs and Management Area Plans refer to produced water as an "imported" supply because the potential supplies are located

outside of the SGMA basin as defined by the GSAs in compliance with the SGMA. The SREIR discusses the potential import of additional produced water for irrigation in the context of SGMA projects that are included in the Arvin-Edison Water Storage District (AEWSD), Cawelo Water District (CWD), Kern-Tulare Water District (KTWD), Westside District Water Authority (WDWA), Eastside Water Management Area (EWMA), and North Kern Water Storage District (NKWSD) – Shafter-Wasco Irrigation District (SWID) Management Area Plans adopted within the Kern Groundwater Authority GSP for the Project Area.

None of these plans provide new substantial evidence indicating that any specific amount of produced water can and will be imported into SGMA-regulated basins for irrigation. The CWD Management Area Plan, which states that the district has used 20,000 to 37,000 AFY of treated produced water and a total amount of 481,880 total acre-feet of treated produced water from 1995 to 2014, specifically concludes that, over the 50-year SGMA planning and implementation horizon, “the volume of treated produced water will fluctuate with oil production and long-term availability cannot be predicted.” See SREIR (October 2020), Vol. 1, at 4.9-42–43. The WDWA Management Area Plan identifies multiple technological, regulatory, cost, and environmental uncertainties that must be addressed in a feasibility study, which will include a “no project alternative,” before any new supplies of treated produced and low-quality groundwater can be reliably provided. See SREIR (October 2020), Vol. 1, at 4.9-55–56. The potential extent of produced water reuse in the AEWSD and EWMA plans is also subject to future feasibility analyses. Future produced water reuse by the KTWD and NKWSD depends in part on the extension of existing contracts throughout the 50-year SGMA planning and implementation period. See SREIR (October 2020), Vol. 1, at 4.9-41, 44–47.

In addition, as discussed in detail in Section 4.9.3, Regulatory Setting, Produced Water Reuse for Agricultural Irrigation, perceived health and safety concerns continue to be raised and may constrain the use of produced water for agriculture even if existing uncertainties regarding the long-term availability of treated produced water in the Project Area, including supplies from oil and gas operations and cost-effective treatment methods that meet applicable regulatory requirements, were reduced. See SREIR (October 2020), Vol. 1, at 4.9-153–156. There is no new substantial information supporting the contention that the SREIR’s estimates of produced water generation and reuse are inaccurate or outdated. The new information reviewed in the SREIR, including the discussion of the availability and potential reuse of produced water in several GSPs and Management Area Plans in the Project Area, as well as ongoing concerns about and regulatory assessments, including the ongoing CVRWQCB Food Safety Project, confirms that the amount of produced water generated by oil and gas operations in the Project Area, and the extent to which any such water would be reused in SGMA-regulated basins, remains subject to significant uncertainty. There is no new substantial basis for revising the produced water generation and potential reuse estimates in the SREIR, which utilize the best available information concerning baseline and projected future oil and gas activities in the Project Area.

0061-29

The comment states that the SREIR has not made a reasonable or good faith effort to incorporate other recent, publicly available information on the generation and use of oil wastewater, citing two letters provided by oil and gas operators in response to information requests by the CVRWQCB in 2016 concerning the volume of produced water provided by the operators for irrigation and a list of chemicals used in oil and gas operations that generate produced water covering the period from the first quarter of 2014 to the first quarter of 2016. The letters provide information concerning the provision of produced water to the CWD and to the NKWSD from the first quarter of 2014 to the first quarter of 2016.

The SREIR discusses the information in the letters, and the information for the Project Area, with reference to the new SGMA plan information identified in the Slip Opinion published in 2020 and in the discussion of the most current information on the CVRWQCB Food Safety Project, which utilized the letters and other responses in the development of the project. See SREIR (October 2020), Vol 1, at 4.9-153–156. The SREIR discusses both the volume of produced water supplied for irrigation within the Project Area, including to the CWD and the NKWSD, and the ongoing regulatory programs concerning such irrigation, using more current and comprehensive information.

The historical amount and potential future use of produced water by the CWD is discussed in the CWD Management Area Plan and summarized in the SREIR. See SREIR (October 2020), Vol. 1, at 4.9-42–43. The historical amount and potential future use of produced water by the NKWSD is discussed in the NKWSD-SWID Management Area Plan and also summarized in the SREIR. See SREIR (October 2020), Vol. 1, at 4.9-46–47. In addition, and in contrast with the outdated and incomplete information provided in the cited letters, the SREIR provides a summary of oil and gas operations, including historical and anticipated future produced water reuse volumes, for each of the GSPs and Management Area Plans adopted in the Project Area. See SREIR (October 2020), Vol. 1, at 4.9-37–60, 4.17-82–92, 4.17-96–97, and SREIR (October 2020), Vol. 2, Appendix D, at 8–19, 25–53. This discussion includes produced water use and proposed use in the AEWSD, KTWD, WDWA, and EWMA Management Area Plans. See Response to Comment 0061-28.

The SREIR includes a thorough discussion of the Food Safety Project, which was initiated by the CVRWQCB to evaluate the safety of irrigation using produced water. The Oil Field Chemical List developed for this project consists of 347 chemicals, based on responses to orders issued by the CVRWQCB as reflected in the two referenced letters, and also in response to the CVRWQCB's enhanced authority provided by new legislation to obtain additional information regarding chemicals related to oil and gas production during 2017 to 2018. See SREIR (October 2020), Vol. 1, at 4.9-153–156. The SREIR identifies each of the WDR orders issued by the CVRWQCB covering produced water reuse for irrigation through October 2020. See SREIR (October 2020), Vol. 1, at 4.9-91. The SREIR evaluates the generation and use of oil wastewater; the CVRWQCB's ongoing programs to monitor and evaluate the safety of using produced water for irrigation, including the documentation of chemicals used in oil and gas operations. It also discussed permits issued by the CVRWQCB for produced water irrigation reuse that are based on much more current and comprehensive information. The SREIR's discussion of the generation and use of produced water is based on a reasonable and good faith effort to utilize the most current and comprehensive information available.

0061-30

The comment states that the SREIR fails to adequately analyze the environmental and human health impacts of oil wastewater, including impacts related to produced water reuse and disposal, produced water reuse for enhanced oil recovery (EOR) activities, produced water reuse for agricultural irrigation, and conveyance and disposal of produced water into ponds and injection wells.

Please see Responses to Comments 0009-48, 0009-51, and 0009-53 regarding water quality and health-related impacts of oil wastewater reuse for irrigation and domestic purposes, and GR-1 – Beyond the Scope of the SREIR. The Court of Appeal's decision in *King & Gardiner Farms, LLC v. County of Kern* upheld the 2015 FEIR against all of the claims raised on appeal except for "five areas in which the EIR did not comply with CEQA: (1) mitigation of water supply impacts; (2) impacts from PM2.5 emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well Health Risk Assessment for public review and comment." Slip Opinion, at p. 140; please see also GR-1. The issues raised in the comment relate to water quality, which was not one of the five deficiencies found by the Court of Appeal. Therefore, the SREIR was not required to re-open or reanalyze the Project's impacts on water quality. The SREIR (October 2020) contains a thorough discussion of the Project's potential environmental and human health effects associated with the reuse and disposal of oil wastewater. See SREIR (October 2020), Vol. 1, at 4.9-182–188. The SREIR (October 2020) has been updated to include a detailed discussion of the regulation, monitoring, and continued scientific investigation of produced water reuse for agricultural irrigation. See SREIR (October 2020), Vol. 1, at 4.9-153–156.

The comment notes that it includes additional comments on the SREIR's specific failures to analyze water quality impacts of oil wastewater. Each of the comments on this issue has been considered, and written responses are provided in the Responses to Comments that follow.

00061-31

The comment states that the SREIR fails to disclose the types, volumes, and concentrations of chemicals present in oil wastewater and fails to analyze potential impacts of these chemicals on water quality and human health. The comment also claims that the SREIR's listing of chemicals used in California well stimulation operations is not complete because it does not include additives used in other oil recovery techniques and in the treatment of oil and gas wastewater.

Chapter 4.9, Hydrology and Water Quality, of the SREIR contains a list of chemicals used in California well stimulation operations (including hydraulic fracturing and acid matrix operations), as identified in a 2014 study conducted for the federal Bureau of Land Management by the California Council on Science and Technology (CCST), Lawrence Berkeley National Laboratory, and the Pacific Institute (CCST 2014). See SREIR (October 2020), Vol. 1, Tables 4.9-23 and 4.9-24, at 4.9-118–128. The SREIR notes that the majority of the well stimulation chemicals considered in the report were determined to have low hazard potential in terms of oral toxicity. See SREIR (October 2020), Vol. 1, at 4.9-117. The 2014 CCST study found that "[m]ost chemicals used in reported well stimulation treatments for which toxicity information is available are considered to be of low toxicity or nontoxic. However, a few reported chemicals present concerns for acute toxicity, including biocides and mineral acids." See SREIR (October 2020), Vol. 1, at 4.9-129. The SREIR also provides lists of chemicals reported in hydraulic fracturing and acid matrix well stimulation interim notices compiled by CalGEM through March 2014, including summaries of each chemical and estimated concentrations of each constituent identified. See SREIR (October 2020), Tables 4.9-25 and 4.9-26, at 4.9-130–136.

The comment states that the SREIR fails to identify several chemicals used in hydraulic fracturing that were found to present "concerns for acute toxicity," including certain biocides, corrosion inhibitors, and mineral acids. Table 4.9-23 provides a

comprehensive list of chemicals used in hydraulic fracturing, including the chemical name, count of occurrence in hydraulic fracturing fluid, oral toxicity ranges, and other information. See SREIR (October 2020), Vol. 1, at 4.9-118–123. The comment does not identify any specific chemicals that were excluded from Table 4.9-23.

The comment states that “the County fails to conduct an analysis of the likely impacts that these chemicals will have on water quality and human health in the Project Area.”

The SREIR (October 2020) sufficiently addresses the Project’s foreseeable and significant impacts on water quality, including from hydraulic fracturing. Potential Project impacts on water quality are primarily discussed in Section 4.9, Hydrology and Water Quality. The 2015 FEIR concluded that, with the implementation of mitigation and compliance with applicable regulatory standards, potential impacts on water quality would be less than significant.

The comment states that the SREIR fails to disclose a list of 347 chemicals included on the “Oil Field Chemical List” developed by the CVRWQCB. As described in the SREIR, the reuse of produced water for irrigation is regulated by the CVRWQCB, which issues WDRs for the agricultural reuse of produced water. Beginning in December 2017, the CVRWQCB issued more than 50 orders to distributors, manufacturers, and suppliers of additives used in oil and gas operations requesting disclosure of information related to all chemicals in produced water. See SREIR (October 2020), Vol. 1, at 4.9-154–155. As part of the Oil Fields Food Safety Project, the CVRWQCB has commissioned a third-party consultant, GSI Environmental, to identify “chemicals of interest” from a list of known chemical additives and naturally occurring chemicals in produced water. See SREIR (October 2020), Vol. 1, at 4.9-153–4.9-155. The Final Task 1 Report prepared for the CVRWQCB by GSI Environmental on March 23, 2020, identified 143 chemicals to be prioritized for further evaluation as “chemicals of interest” (GSI 2020). The Task 1 Report also includes a full list of petroleum extraction-related chemical additives evaluated for toxicity (GSI 2020, Appendix B).

The SREIR notes that wastewater and other operations-related fluids and chemicals can be spilled as a result of equipment leaks, including from pipes and storage tanks. Leaks can also occur due to casing and cement failures and human error, including from accidents involving the surface transport of products used or produced by the oil and gas industry. See SREIR (October 2020), Vol. 1, at 4.9-182. The SREIR also notes that chemicals used during well stimulation activities can mix with produced water as part of surface or subsurface discharges, including spills. See SREIR (October 2020), Vol. 1, at 4.9-184. The SREIR thus contains sufficient discussion of the potential environmental and human health impacts of chemicals potentially found in oil wastewater that would be generated by the Project

0061-32

The comment states that the draft SREIR must analyze the impacts of oil wastewater, including on groundwater quality and human health, based on information provided by oil and gas operators to the CVRWQCB regarding the type and volumes of chemicals found in oil wastewater.

Please see Response to Comment 0061-31, describing the SREIR’s analysis of potential chemicals found in oil wastewater and the results of the Food Safety Project Task 1 Report.

0061-33

The comment states that the SREIR fails to sufficiently analyze scientific studies included in the SREIR relating to potential water quality impacts of oil and gas operations.

Based on responses to comments on the SREIR (August 2020), the SREIR was updated to include summaries of the studies identified in the comment. See SREIR (October 2020), Vol. 1, at 4.9-184–188. The comment suggests that certain “key findings” from some of these studies have been excluded. The SREIR did not purport to provide a comprehensive summary of these studies’ respective findings. These studies “demonstrate the ongoing study and analysis of the impacts of produced water disposal and well stimulation activities on groundwater,” and “collectively provide additional evidence of the potential of oil and gas activities to violate water quality standards or waste discharge requirements, consistent with the analysis in Chapter 4.9 of the 2015 FEIR...” See SREIR (October 2020), Vol. 1, at 4.9-188. These impacts are addressed through compliance with applicable regulatory standards and requirements, as well as with the SREIR’s water quality mitigation measures (MM 4.9-1 through MM 4.9-6). See SREIR (October 2020), Vol. 1, at 4.9-188. With respect to the comment’s reference to Shonkoff et al. (2016), please see Response to Comment 0061-31 for a discussion of the SREIR’s discussion of the types, volumes, and concentrations of chemicals used in oil wastewater.

The comment notes that the SREIR (October 2020) incorrectly claims that McMahon et al. (2019) is not specific to Kern County. The study focuses on three oilfields located within Kern County: Fruitvale, Lost Hills, and South Belridge. In response to this comment, the SREIR (October 2020), Vol. 1, p. 4.9-187, is revised as follows:

McMahon, P.B. et al. (2019). Occurrence and Sources of Radium in Groundwater Associated with Oil Fields in the Southern San Joaquin Valley, California. In this study, geochemical data from 40 water wells were used to examine the occurrence and sources of radium in groundwater associated with three oil fields in California (Fruitvale, Lost Hills, South Belridge). ~~This study is not specific to Kern County.~~

0061-34

The comment states that the SREIR improperly dismisses non-California studies regarding the human health and environmental impacts of hydraulic fracturing operations, specifically Kassotis et al. (2014) and DiGiulio and Jackson (2016).

Kassotis et al. (2014) examined the presence of endocrine-disrupting chemicals used for hydraulic fracturing in surface and groundwater samples in Colorado, while DiGiulio and Jackson (2016) studied impacts to underground drinking water sources and domestic wells from well stimulation operations in Wyoming. The CCST's July 2015 independent scientific assessment of well stimulation activities explains that hydraulic fracturing practices and geologic conditions in California differ significantly from those in other states (CCST 2015a). The County acknowledged and analyzed these differences in the 2015 FEIR in Appendix U, Kern County Drilling and Hydraulic Fracturing Comparison Memo. See SREIR (October 2020), Vol. 4, Appendix U. Other states' experiences with hydraulic fracturing do not necessarily apply to current hydraulic fracturing operations in California. For example, the 2015 CCST Report found that "California wells tend to be shallow and the reservoirs more permeable" than those in other states, and that "California operators generally do not conduct high-volume hydraulic fracturing from long-reach horizontal wells, and for this reason use far less water" (CCST 2015a, p. 1). The 2015 CCST Report describes several significant differences between hydraulic fracturing operations in California and those in other states due to distinct operational practices and geologic conditions:

In the last few decades, significant innovation in the relatively old technology of hydraulic fracturing made economic production of oil and gas from deep, impermeable "source rocks" possible. In reservoirs such as the Bakken Formation in North Dakota or the Eagle Ford Formation in Texas, operators now drill horizontal wells that can be many miles long (long-reach horizontal drilling) and use water mixed with specialized chemicals to hydraulically fracture the rocks and produce the petroleum. Hydraulic fracturing of these wells requires a lot of water, because the operation must create many interconnected fractures to access the oil or gas, and because long horizontal wells may require ten to over a hundred separate hydraulic fracture events, or stages. This type of hydraulic fracturing is called "high-volume" hydraulic fracturing, or "HVHF."

Although California operators have benefited from advances in hydraulic fracturing technology, the application of this technology in California differs from other states, primarily because the geology of the petroleum reservoirs differs. In California reservoirs in production today, the oil formed in the source rocks has migrated towards the surface until something in the geologic structure (known as a "trap") prevents further migration. Today, operators produce this "trapped" petroleum. California reservoirs are shallower and more permeable than the shale source rocks being produced with HVHF. In California, the wells tend to be shorter and near-vertical as opposed to horizontal. The hydraulic fracturing operations require much less water per well, because the operations in California tend to produce a simple fracture that connects to natural fractures, and short wells require fewer fracture events (stages) per well. California hydraulic fracturing uses more concentrated chemicals in the water than hydraulic fracturing in other states. More concentrated chemicals allow the fluid to carry the additional proppant required to hold open a simple fracture. Consequently, the practices and impacts of hydraulic fracturing in other states do not necessarily apply to current hydraulic fracturing for petroleum production in California. (CCST 2015a, pp. 16–17.)

The 2015 CCST Report found that California hydraulic fracturing operations consume significantly less water than operations in other states. For example, California operations consume an average of 140,000 gallons (over 500 cubic meters [m^3]) of water per well, compared to about 4 million gallons (16,000 m^3) per well used in horizontal wells in the Eagle Ford Formation in Texas (CCST 2015a, p. 17). The 2015 CCST Report also found that more than 90 percent of hydraulic fracturing operations in California use less than 300,000 gallons (one million m^3) of water per well (CCST 2015a, p. 17, and Figure S.2-5, p. 18). The 2015 CCST Report notes that the state of New York recently banned "high-volume" hydraulic fracturing operations, defined as operations using more than 300,000 gallons of water per well. Therefore, "if California were to enact the same ban hydraulic fracturing as enacted in New York, the ban would make little difference to current hydraulic fracturing practice in California" (CCST 2015a, p. 17). Based on these differences between hydraulic fracturing in California and other states, the

2015 CCST Report concludes that “[p]resent-day hydraulic fracturing practice and geologic conditions in California differ from those in other states, and as such, recent experiences with hydraulic fracturing in other states do not necessarily apply to current hydraulic fracturing in California” (CCST 2015a, p. 16).

The Senate Bill (SB) 4 Environmental Impact Report (certified by the California Division of Oil, Gas, and Geothermal Resources [DOGGR, now CalGEM] in 2015) noted several differences between hydraulic fracturing operations in California and those in other states, including that “[f]racture lengths are typically much shorter in California due to the layered geological environment and other physical parameters, such as an area’s history of seismic activity and resulting movement of geologic features, shallower depths of well stimulation treatments than in other states, and lower volumes of fracturing fluids injected.” SB 4 EIR, at 7-9. The SB 4 EIR also recognized that “California has the most rigorous regulations in the country for oil and gas exploration, development and production,” and the implementation of these regulations “has greatly minimized, and in many cases prevented, the types of environmental impacts that have occurred in other states.” SB 4 EIR, at C.10-24.

Tran et al. (2020), cited by commenters, also acknowledges that hydraulic fracturing practices in California differ from those in other states, “potentially resulting in differing environmental hazards.” The study notes that the use of hydraulic fracturing in California has declined compared to other states, accounting for only 20 percent of California’s oil production over the last decade:

Given the long history of OGD [oil and gas development] in CA [California], stimulation techniques, such as water and steam injection and HF [hydraulic fracturing], are primarily used at established sites rather than newly drilled wells. Oil recovered via water flooding and steam injection (conventional enhanced oil recovery methods) accounted for 76% of the state’s oil production in 2009 (Long et al. 2015b), whereas HF, an unconventional stimulation technique, accounted for 20% of CA’s oil production in the last decade. Due to types of geological formations, HF practices in CA differ from other states, potentially resulting in differing environmental hazards...(Tran et al. 2020, p. 067001-1)

California’s OGD infrastructure is older than infrastructure in other states and utilizes less HF in comparison with OGD in Pennsylvania, Colorado, and other states where production infrastructure is newly established (Long et al. 2015b). These regional differences in OGD infrastructure may affect the type of hazards associated with them and their implications for maternal health and birth outcomes. (Tran et al. 2020, p. 067001-10)

These findings are based on the 2015 CCST Report, which notes the reduction in hydraulic fracturing in California relative to the increase in hydraulic fracturing in other states (CCST 2015b, Vol. 1, p. 11). These findings are also consistent with recent data from CalGEM, which show a general decline in the number of well stimulation treatment (WST) permits issued in 2020 compared to previous years. According to CalGEM’s Well Stimulation Treatment webpage, as of December 2020, 69 WST permits were issued in 2020, compared to approximately 220 permits issued in 2019. The webpage notes: “WST permit approvals and resulting hydraulic fracturing activity is at its lowest level since the Legislature enacted SB 4 in 2014 to expressly permit hydraulic fracturing under the nation’s strongest regulatory conditions” (CalGEM 2019).

A 2019 report by the City of Los Angeles Department of Public Works, Office of Petroleum and Natural Gas Administration and Safety regarding potential health and environmental impacts of oil and gas operations within the city identified significant differences between oil and gas production in California and other states (City of Los Angeles 2019). The report noted that while “[t]he majority of the studies cited in research literature were from unconventional natural gas fields that have tight shale rock geologic formations enabled by high-volume hydraulic fracturing operations outside of California,” conventional oil and gas production in the city “is completely different from the field specific geochemistries, high pressure and high flow rate oil and natural gas production in other states like Colorado, New Mexico, Oklahoma and Texas” (City of Los Angeles 2019, p. 1). This is because production in those states involves “unconventional natural gas development techniques, such as hydraulic or acid matrix fracturing that utilize large gas compressor stations. Oil and gas production in those states can often flow freely on primary production at much greater depths to the surface than in the mature oil fields within the City” (City of Los Angeles 2019, p. 142). The report also noted that California state and local regulatory requirements relating to oil and gas operations provide heightened regulatory protections compared to those in other states such as Colorado, Texas, Ohio, Pennsylvania, or Maryland (City of Los Angeles 2019, p. 143).

Because California hydraulic fracturing practices, geologic conditions, and regulatory requirements differ significantly from those in other states, as noted in the 2015 CCST Report and SB 4 EIR, the findings and conclusions of the studies cited in the comment regarding hydraulic fracturing practices in other states do not necessarily apply to current hydraulic fracturing operations in California.

0061-35

The comment states that the SREIR fails to analyze the amount of oil wastewater that could be reused for irrigation and domestic purposes, as well as the water quality and health-related impacts related to reuse of oil wastewater for those purposes.

The comment is introductory and does not require a detailed response. Please see Responses to Comments 0009-48, 0009-51, and 0009-53 regarding the SREIR's analysis of potential impacts related to produced water reuse and disposal. Those responses explain that the SREIR (October 2020) adequately addresses foreseeable and significant impacts to water quality from produced water reuse and disposal, including potential impacts related to the use of produced water for agricultural irrigation.

0061-36

The comment states that the SREIR fails to analyze the amount of oil wastewater that could be reused for irrigation and domestic purposes over the life of the Project.

As explained in the SREIR, the amount of produced water that will be available for reuse in the future cannot be predicted because it would depend on several uncertain conditions, including the extent of future oil and gas operations in response to future industry regulatory and market conditions, as well as the perceived health and safety concerns regarding use of produced water for agricultural purposes, which "may further constrain the use of produced water for agriculture in the future." See SREIR (October 2020), Vol. 1, at 4.9-156. Section 4.9.4, Impacts and Mitigation Measures, of the SREIR notes that the amount of treated produced water available for agricultural or other non-oil and gas-related reuse may "change over time in response to the current drought, state policies to encourage water conservation and reuse, and in the event demand from agricultural or urban users increases." See SREIR (October 2020), Vol. 1, at 4.8-177–178.

The SREIR also explains that the long-term availability of treated produced water for irrigation and domestic uses in the Project Area cannot be predicted due to technical feasibility constraints:

The County could potentially implement a mitigation measure that requires the additional reuse of produced water for agricultural irrigation to offset Project impacts to higher-quality M&I [Municipal and Industrial] water supplies. As discussed above in Section 4.9.2, Environmental Setting, Project Area Groundwater Sustainability Plans and Oil and Gas Activities, and in Appendix D, several GSPs and management area plans include potential SGMA Projects that would, if successfully implemented, increase produced water imports for beneficial use in SGMA planning areas. None of the plans, however, indicate that any such increased reuse will be feasible; several, including the Cawelo GSP, explicitly state that the amount of produced water available for reuse in the future cannot be predicted due to potential regulatory and technical feasibility constraints. At present, the potential expansion of produced water reuse included in GSPs and management area plans are subject to ongoing feasibility studies to determine whether increased produced water supply imports can be achieved.

As discussed in Appendix D and Section 4.17, Utilities and Service Systems of this SREIR, in late 2019 and early 2020, state regulators indicated that they wish to curtail oil and gas activities in California. In recent years, the oil and gas industry has experienced lower prices, including a brief period in 2020 when spot market futures for oil turned sharply negative for the first time in history. The County cannot mandate that oil and gas operators generate produced water in predictable amounts over time, and has no authority or control to regulate state policies or national and international conditions affecting industry operations, including produced water generation. As discussed in Section 4.9.3, Regulatory Setting, Produced Water Reuse for Agricultural Irrigation, although there is no evidence to date that permitted produced water reuse for irrigation in the Project Area has caused health or safety issues, there is continued opposition to and concern about such reuse. Since 2015, the CVRWQCB has created an ongoing Food Safety Project, including an expert panel, to continue to evaluate and assess these concerns. It is possible that, even if additional amounts of produced water imports for irrigation are technically and economically feasible to generate and available in the future, health and safety concerns would preclude such use. Given these considerations, the implementation of a mitigation measure to offset oil and gas M&I water use with predictable amounts of produced water reuse is infeasible. SREIR (October 2020), Vol. 1, at 4.9-208.

The SREIR thus contains a sufficient discussion of the future availability of oil wastewater for re-use for irrigation or domestic purposes over the life of the Project and concludes that the long-term availability of treated produced water for irrigation and domestic uses in the Project Area cannot be predicted due to potential regulatory and technical feasibility constraints.

0061-37

The comment states that the SREIR should provide additional analysis of the water quality and human health impacts from produced water reuse. The SREIR is not required to modify the analysis of this issue.

Please see GR-1 – Beyond the Scope of the SREIR. The Court of Appeal issued a decision upholding the 2015 FEIR against all claims except for five areas: (1) mitigation of water supply impacts; (2) impacts from PM_{2.5} emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well Health Risk Assessment. Impacts other than water supply related to the generation and use of produced water are not among the five topics required to be addressed in the SREIR. Slip Opinion, at p. 140. Please see Response to Comment 0061-28. The 2015 FEIR provided a thorough and comprehensive discussion of potential water quality impacts that could occur from produced water reuse.

In response to the Slip Opinion, the SREIR includes information about potential future produced water reuse discussed in adopted GSPs and Management Area Plans in the Project Area in the context of assessing whether such reuse could be implemented to reliably and predictably reduce potential Project impacts to water supply. The information shows it is possible that, consistent with the adopted GSPs and Management Area Plans in the Project Area, additional produced water will be used to supplement supplies in the Project Area and in other locations over time, an outcome that would support rather than impact sustainable groundwater management and SGMA plan implementation in the Project Area. None of the plans, however, indicate that any such increased reuse will be feasible; several, including the Cawelo GSP, explicitly state that the amount of produced water available for reuse in the future cannot be predicted due to potential regulatory and technical feasibility constraints. See SREIR (October 2020), Vol. 1, at 4.9-208–209, 4.9-215, 4.17-84, 4.17-90. The SREIR includes a thorough and comprehensive discussion of the Food Safety Project initiated by the CVRWQCB to evaluate the safety of irrigation with produced water to provide substantial evidence that the future use of produced water for irrigation, and thus as a potential mitigation measure, is subject to ongoing concern and opposition that significantly increases the uncertainties surrounding such use. See SREIR (October 2020), Vol. 1, at 4.9-153–156. These facts provide substantial evidence supporting the SREIR's conclusion that attempting to predictably reduce the Project's water supply impacts by increasing produced water reuse is uncertain and infeasible.

The comment does not accurately reflect this context. The comment states that the SREIR's summary of the CVRWQCB's published determination that, "[t]o date, no evidence has shown that irrigating food crops with produced water poses any threats to public health" (emphasis in original) is not based on substantial evidence even though the statement is explicitly attributed to the CVRWQCB in the SREIR.

See California Water Boards, Frequently Asked Questions about Recycled Oilfield Water for Crop Irrigation (California Water Boards 2019a). The CVRWQCB is the state agency that has most closely monitored the use of produced water for irrigation, and must issue WDRs in accordance with state and federal laws protecting water quality for any such use. The comment further states that the SREIR relies on information produced by the CVRWQCB Food Safety Project to evaluate the risk to human health from produced water use for irrigation. The SREIR provides a thorough and comprehensive discussion of the Food Safety Project, including summaries of the project's purpose, research, and draft analyses to date to document that, in addition to uncertainty regarding the long-term availability of treated produced water from oil and gas operations in the Project Area, perceived health and safety concerns continue to be raised and could further constrain the use of produced water for agriculture in the future. See SREIR (October 2020), Vol. 1, at 4.9-156. The SREIR provides substantial evidence in support of this conclusion by discussing current and ongoing Food Safety Project activities, including a summary of the CVRWQCB Executive Officer's report for October 2020. The report states:

- The panel's technical consultants are updating draft reports based on comments from the panel, science advisor, and CVRWQCB staff;
- The reports will be made available to the public upon approval by the panel and require additional work before they are posted on the Food Safety webpage;
- CVRWQCB staff are continuing to work on a draft white paper summarizing the work and findings of the Food Safety Project;
- Draft versions of the white paper will continue to be reviewed by the panel, science advisor, and technical consultants and, following review, will be made available to the public for a comment period; and
- CVRWQCB staff are also working on a resolution to be considered by the CVRWQCB that will outline the findings of the Food Safety Project and provide guidance for addressing new and expanded projects that include the reuse of produced wastewater for irrigation.

The SREIR discusses the fact that, when complete, the resolution will be presented to the CVRWQCB during a public meeting. See SREIR (October 2020), Vol. 1, at 4.9-156. This information provides substantial evidence that the future reuse of produced water as a mitigation measure for potential Project water supply impacts is uncertain and thus infeasible.

The SREIR also provides a thorough and comprehensive summary of the regulatory requirements for produced water reuse for irrigation, including the issuance of WDR Monitoring and Reporting Program (MRP) requirements applicable to permit holders that are treating and using produced water for irrigation. See SREIR (October 2020), Vol. 1, at 4.9-91, 4.9-153–155. All produced water use for irrigation in the Project Area has been, and must be, permitted by the issuance of WDRs and MRPs by the CVRWQCB, and there is no basis for conducting a health risk assessment (HRA) related to such reuse. See SREIR (October 2020), Vol. 1, at 4.9-156.

The comment states that the SREIR identifies a single May 2020 analysis by researchers from Duke University and RTI International concerning the safety of produced water reuse. The SREIR accurately states that the 2020 study measured salts, metals, radionuclides, and dissolved organic carbon in low-saline produced water used by the CWD and found that concentrations of inorganic constituents were below drinking water and irrigation standards and had low radium nuclides, similar to soil irrigated by groundwater. The purpose of citing the study in the SREIR, however, was to demonstrate that the reuse of produced water for irrigation continues to generate concern, and continues to be studied by scientific researchers in addition to agencies such as the CVRWQCB, which makes the future use of such water for potential Project water supply impact mitigation uncertain. The SREIR states that “[a]s noted by the SWRCB [State Water Resources Control Board] and the CVRWQCB, and as discussed in a peer-reviewed study published in May 2020 by researchers from Duke University and RTI International (Duke University 2020), there is ongoing opposition to and concern about treated produced water reuse based on perceived health and safety concerns.” See SREIR (October 2020), Vol. 1, at 4.9-156. The information provided in the SREIR concerning the ongoing regulatory and political uncertainties and concerns regarding produced water reuse for irrigation provides substantial evidence in support of the conclusion that it is infeasible to mitigate the Project’s water supply impacts by attempting to increase produced water irrigation use and offset these impacts to a predictable extent.

0061-38

The comment states that the SREIR does not analyze other environmental impacts related to the treatment and reuse of produced water and inexplicably strikes the only sentence that discusses these impacts: “[P]roduced water treatment and distribution could have several significant environmental impacts such as greenhouse gas emissions and concentrated brine disposal that will need to be fully evaluated.”

The SREIR is not required to modify the analysis of these issues. Please see GR-1 – Beyond the Scope of the SREIR. The Court of Appeal issued a decision upholding the 2015 FEIR against all claims except for five areas: (1) mitigation of water supply impacts; (2) impacts from PM_{2.5} emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well Health Risk Assessment. Impacts other than water supply related to the generation and use of produced water are not among the five topics required to be addressed in the SREIR. Slip Opinion, at p. 140. Please see Response to Comment 0061-28. The 2015 FEIR provided a thorough and comprehensive discussion of potential water quality impacts that could occur from produced water reuse.

The SREIR includes multiple references to and discussions of the significant environmental effects that could be caused by produced water treatment and reuse, including the substantive issues identified in the text referenced in the comment. The SREIR states that “The reuse of additional produced water, particularly supplies with lower quality than available in the Eastern Subarea, could require more intensive, technically demanding and more costly forms of treatment. It is possible that treatment requirements could have other environmental effects related to increased energy use and air quality and greenhouse gas emissions, or post-treatment waste stream disposal.” See SREIR (October 2020), Vol. 1, at 4.180–181. The SREIR also states that “[t]he County does not have produced water treatment and distribution facilities sufficient to produce and deliver higher quality water to oil and gas operators throughout the Project Area. As a result, higher quality water would need to be generated in new, energy intensive facilities and delivered by truck to most of the Project Area, which would require additional permitting processes to avoid adverse secondary environmental impacts, including increased energy and vehicular use and greenhouse gas emissions.” See SREIR (October 2020), Vol. 1, at 4.9-211–212, 4.17-87. The SREIR further states that “[d]ue to the risks of chemical interactions adversely affecting health, safety, and equipment integrity that would result from using produced water for certain operations, the additional delivery infrastructure, truck trips, and brine disposal required to generate higher quality supplies from produced water, technological, and economic challenges, and the likelihood of adverse social and economic impacts in the County, the complete elimination of domestic and irrigation quality water by

oil and gas operators in the Project Area is economically, socially, environmentally, and technologically infeasible.” See SREIR (October 2020), Vol. 1, at 4.9-212, 4.17-87.

In discussing the WDMA Management Area Plan’s proposal to increase the use of treated produced water and groundwater, and the WDMA’s implementation of a feasibility study to evaluate this potential supply augmentation program, the SREIR states that the study includes “[e]valuating existing hydrogeologic data pertaining to brackish groundwater and oil field produced water quality, water use, and volumes; [d]evelopment of preliminary engineering options and costs for siting the treatment facility, source wells, water treatment, energy demand, concentrate disposal, and treated water transmission” and the consideration of “several different construction and RO configurations, combined with varying approaches for concentrate (brine) disposal.” See SREIR (October 2020), Vol. 1, at 4.9-55–56. The SREIR did not delete references to, and discloses and discusses, the potential greenhouse gas and brine disposal environmental impacts, as well as other impacts, that could be associated with additional treatment of produced water.

0061-39

The comment states that the SREIR fails to adequately analyze current baseline conditions for oil and gas wastewater disposal ponds and UIC wells in the Project Area, including the number, location, depth, and other environmental conditions related to all oil wastewater disposal ponds and wells.

As of March 2015 the CVRWQCB had identified 355 inactive ponds previously used for produced water disposal, 370 ponds that are active and permitted, and 208 active ponds that were not issued WDRs or other disposal permits. See SREIR (October 2020), Vol. 1, at 4.9-111. The identification and disclosure of oil wastewater disposal ponds by regulatory agencies with authority over such ponds is ongoing, with data being updated as appropriate. The CVRWQCB maintains a Produced Water Ponds List, the most recent version of which is dated November 19, 2019 (CVRWQCB 2019). See SREIR (October 2020), Vol. 1, at 4.9-182. The list identifies produced wastewater disposal ponds in Region 5, including the operator, lease, oil field, county, specific location, active or inactive status, and other information. As the comment notes, the SWRCB has also compiled a list dated, January 2019, showing 561 active ponds and 533 inactive ponds in the Central Valley region (California Water Boards 2019b). The SREIR’s disclosure, analysis, and mitigation of impacts associated with oil wastewater disposal ponds and wells is consistent with ongoing disclosure and regulatory efforts of state and regional agencies charged with oversight of these activities.

The comment also claims that the SREIR fails to incorporate updated information on the volume of oil wastewater that is currently being disposed of in surface ponds or underground injection wells. As of 2012, approximately 30,931 acre-feet of produced water was disposed of into surface ponds, and 84,500 acre-feet of produced water was disposed of by injection into Class II wells in the Project Area. See SREIR (October 2020), Vol. 1, Table 4.9-1, at 4.9-27–28. In addition, according to a recent report by CalGEM, wastewater injection volumes in the state have generally decreased since 2015. See Response to Comment 0009-53, describing CalGEM’s 2018 report on statewide wastewater injection volumes.

0061-40

The comment states that the SREIR fails to disclose the total number, location, and other related information regarding underground injection wells and exempt aquifers in the Project Area.

As the comment acknowledges, the SREIR discloses that “there are 469 UIC wells, based on 2015 data.” The SREIR also discloses that “[f]rom 2017 to 2020, the EPA [U.S. Environmental Protection Agency] approved 20 aquifer exemptions, including several within the Project Area and encompassing many of the wells identified in the GSPs (see discussion under Impact 4.9.2). Several other aquifer exemption proposals are being reviewed and considered by CalGEM, including locations in the Project Area (CalGEM 2020d).” See SREIR (October 2020), Vol. 1, at 4.9-183. The identification and disclosure of underground injection wells by the regulatory agencies with authority over such wells is ongoing, with data being updated as appropriate. The SREIR’s disclosure, analysis, and mitigation of impacts associated with oil underground injection wells is consistent with ongoing disclosure and regulatory efforts of state and regional agencies charged with oversight of these activities.

0061-41

The comment states that the SREIR fails to analyze the potential water quality and health-related impacts associated with the disposal of oil wastewater into wastewater ponds and underground injection wells.

Please see Responses to Comments 0009-48, 0009-51, and 0009-53 regarding water quality and health-related impacts of reusing oil wastewater for irrigation and domestic purposes, and GR-1 – Beyond the Scope of the SREIR. The issues raised in

the comment relate to water quality, which was not one of the five topic areas found deficient by the Court of Appeal. The SREIR was not required to re-open or reanalyze the Project's impacts on water quality. The SREIR contains a thorough discussion of the potential impacts to surface water and groundwater quality from disposal of produced water to surface ponds and Class II wells. Regarding the incorporation of selected studies into the SREIR's water quality analysis, see Responses to Comments 0061-33 and 0061-34.

The comment also states that the SREIR should disclose the estimated quantity of wastewater that would be disposed of, the expected locations of disposal sites and injection wells that would be used during the life of the Project, the types and concentrations of chemicals in disposed or injected wastewater, and the potential environmental and human health impacts of these chemicals. The amount of produced water that will be disposed of in surface evaporation or percolation ponds or Class II injection wells is uncertain. See SREIR (October 2020), Vol. 1, at 4.9-177. While it is generally expected that the volume of produced water per unit of extracted hydrocarbons would increase as existing oil fields become more depleted, "new technologies, or the potential development of new oil shale resources, may affect the future amount of produced water that is generated in the Project Area." See SREIR (October 2020), Vol. 1, at 4.9-177. The amount of produced water disposed of into surface ponds is also likely to decrease in response to regulatory efforts to reduce or eliminate disposal of produced water to surface ponds. See SREIR (October 2020), Vol. 1, at 4.9-178. The SREIR describes three scenarios for Project-related water use in 2035, based on variations in the amount of surface pond disposal, injection well disposal, and reuse of produced water that could occur under future conditions. See SREIR (October 2020), Vol. 1, Table 4.9-27, at 4.9-178–179. Regarding the number and location of oil wastewater disposal ponds and wells, please see Responses to Comments 0061-39 and 0061-40. Regarding the types of chemicals found in oil wastewater, please see Response to Comment 0061-31, describing the SREIR's analysis of this issue.

0061-42

The comment states that the SREIR may not rely on oil and gas operators' compliance with applicable regulations, including the UIC program administered by CalGEM, to mitigate water quality and health impacts of underground injection wells, in light of CalGEM's history of noncompliance, inconsistent permitting, and lack of enforcement of the state UIC program.

Courts have routinely held that agencies may properly rely on compliance with regulatory programs for mitigation of environmental impacts under CEQA. See *Oakland Heritage Alliance v. City of Oakland* (2011) 195 Cal.App.4th 884, 906 ("a condition requiring compliance with regulations is a common and reasonable mitigation measure, and may be proper where it is reasonable to expect compliance"); *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal.App.4th 214, 243 ("Complying with government regulations as a mitigation measure is not an improper deferral"). A lead agency may presume that other agencies charged with enforcing regulatory programs will do so. See *Rominger v. Colusa* (2014) 229 Cal.App.4th 690, 728 (challengers offered "no evidence to suggest that it would be unreasonable to expect" compliance with statewide regulations). The SREIR properly relies upon compliance with all applicable laws and regulations, including the UIC program as administered by CalGEM, to mitigate potential water quality impacts related to injection wells.

The comment cites a 2011 EPA audit of the California UIC program, a February 2015 CalGEM report to the EPA regarding injection into non-exempt aquifers, and a 2020 Department of Finance Audit Report evaluating CalGEM's compliance with the UIC and WST permitting programs, as evidence of a "long history of noncompliance, inconsistent permitting, and lack of state enforcement of underground injection of oil wastewater" on the part of CalGEM that should preclude the SREIR's reliance on state regulatory requirements for mitigation of the Project's impacts. The SWRCB and CalGEM initiated a work plan to address the UIC program issues identified by the 2011 EPA audit, and CalGEM has continued to provide the EPA with updates on the aquifer exemption process. See SREIR (October 2020), Vol. 1, at 4.9-115. Regarding the November 2020 Department of Finance Audit Report, please see Response to Comment 0061-107, which discusses that issue. The Audit Report concluded that CalGEM's UIC and WST permit processes were generally in compliance with applicable statutes and regulations and outlined several recommendations for improving CalGEM's administration of the UIC and WST programs.

0061-43

The comment is an introduction to a series of comments. See Responses to Comments 0061-44 through 0061-55. The comment summarizes CEQA mitigation principles and a detailed response is not required.

The comment states that the SREIR projects that oil and gas demand for domestic or irrigation quality (M&I) water will be 11,761 AFY in 2035. The SREIR states that the Project could result in an increased use of M&I water from approximately 8,778 AFY in the baseline year of 2012, and 9,660 AFY in 2015, to 11,760 AFY in 2035. This potential M&I water use would be 2,982 AFY more than the 2012 baseline consumption and 2,100 AFY above 2015 consumption. Total M&I water use for oil and gas purposes would amount to 0.34 percent in 2012 to 0.4 percent in 2035 of total Project Area M&I water demand. The potential

increase in M&I water demand of 2,982 AFY above the 2012 baseline consumption, and 2,100 AFY above the 2015 consumption, would be approximately 0.102 percent and 0.072 percent of Project Area M&I demand in 2035. See SREIR (October 2020), Vol. 1, Table 4.17-26, at 4.17-70, and Table 4.17-31, at 4.17-75.

The comment states that the SREIR's conclusion that water supply impacts will be significant and unavoidable (1) does not comply with CEQA and (2) is unsupported by substantial evidence. The feasibility of implementing potential mitigation measures to predictably reduce water supply impacts is analyzed in detail in the SREIR. Potential mitigation measures considered in the analysis include additional reuse of produced water for agriculture, banning the use of M&I water, limiting oil and gas activity with permit quotas or similar measures, and implementing one or more of the proposed SGMA projects identified in Project Area GSPs and Management Area Plans. The feasibility and effectiveness of these measures to predictably reduce Project water supply impacts were analyzed with reference to multiple criteria. The criteria include:

- Regulatory uncertainty;
- Produced water treatment and other technological limitations;
- Lack of sufficient recycled and produced water treatment conveyance and distribution facilities;
- Economic factors, including factors identified in Project Area GSPs and Management Area Plans;
- Engineering and safety concerns related to the need for higher quality water in certain oil and gas operations;
- Potential generation of new significant environmental impacts, such as increased air and greenhouse gas emissions required to expand produced water treatment, building and operating newly produced and recycled water conveyance and distribution facilities, or using heavy vehicles to deliver M&I water;
- The fact that GSP and Management Area Plan revisions that will occur at least at five-year intervals over the multi-decade SGMA process, including the high probability that Project Area SGMA projects will be substantially modified over time; and
- The fact that GSAs with authority to implement SGMA plans in the Project Area have specifically stated that certain SGMA projects, such as agricultural land fallowing, would cause substantial social and economic harm and that efforts would be made to avoid such measures by adaptive plan management.

See SREIR (October 2020), Vol. 1, at 4.9-208–215, 4.9-219–221, 4.17-82–92, 4.9-96–97. Please also see Responses to Comments 0061-44 through 0061-54.

The comment states that MM 4.17-5, which imposes a fee on oil and gas project applicants to mitigate the Project's fair share of potential impacts to disadvantaged community water supplies, is insufficiently defined and non-compliant with CEQA. The fee would result in fair share funding for disadvantaged community water supply mitigation substantially greater in magnitude than state legislators have attempted to achieve in recent unenacted statewide proposals or have implemented in temporary measures currently scheduled to expire in 2030. Unlike statewide programs, MM 4.17-5 would also generate significant water supply funding benefits specifically reserved for, and that will solely benefit, disadvantaged communities in the Project Area. Please see Response to Comment 0061-55.

0061-44

The comment states that there are hundreds of projects and management actions identified in SGMA plans adopted for the Project Area by GSAs to achieve the sustainable groundwater management objectives of the SGMA by 2040. The comment states that these projects and management actions are, in essence, water supply mitigation measures that are facially feasible and require funding or other action within the capacity of the County, particularly if oil and gas Project applicants pay fees or undertake mitigation directly.

The implementation of one or more SGMA projects proposed in Project Area GSPs and Management Area Plans is discussed in detail in the SREIR and was determined to be infeasible for several reasons. The SGMA is a locally based approach to long-term groundwater sustainable management that allows for a variety of approaches to avoid undesirable results by implementing comprehensive solutions for each applicable basin and subbasin. The formation of GSAs; the adoption of GSPs and Management Area Plans; the development of technical hydrological information at a basin, subbasin, and plan level; and the consideration and integration of a wide range of interests affected by groundwater have never before been attempted, let alone successfully implemented, in California. The adopted GSPs in the Project Area represent initial approaches for implementing the SGMA that will be adaptively managed and revised as necessary to comprehensively meet SGMA

requirements over the statutory 20-year compliance period and a 50-year planning and implementation horizon. See SREIR (October 2020), Vol. 1, at 4.9-10–14.

Section 355.2(e) of the SGMA emergency regulations adopted by the DWR in 2016 provides that the DWR shall evaluate a GSP “within two years of its submittal date and issue a written assessment,” including if the GSP is approved, incomplete, or inadequate. The adopted GSPs and Management Area Plans were submitted on January 31, 2020, and the DWR has until January 31, 2022, to complete the review process. The DWR review process, including the issuance of a written assessment determining if each plan is approved, incomplete, or inadequate, has not been completed for any of the Project Area GSPs or Management Area Plans. See SREIR (October 2020), Vol. 1, at 4.9-164. It is virtually certain that the SGMA process, including the identification and implementation of SGMA projects, will be significantly modified during the DWR review process, successive GSP and Management Area Plan five-year reviews, during the 20-year compliance period, and over the 50-year planning and implementation horizon mandated by the SGMA and the SGMA regulations. See SREIR (October 2020), Vol. 1, at 4.9-214 and 4.17-89.

The SREIR evaluates the use of SGMA projects as mitigation for Project water supply impacts, including specific SGMA projects identified in SREIR comments. The SREIR also considers the feasibility of implementing demand reduction SGMA projects, such as land fallowing, imposing fees to pay for SGMA projects, and increased produced water reuse as proposed in several Project Area GSPs and Management Area Plans. These potential mitigation approaches were determined to be infeasible for several reasons, including existing concerns about the implementation and effectiveness of the projects. Comment 0061-45 states that “not all SGMA projects are good ideas – and particularly those that rely on use of produced water for irrigation purposes.” The comments also accurately state that “SGMA implementation is a dynamic 20-year process and that it is not clear how it will unfold or what projects will be worth implementing.” See Comment 0061-47 and Response to Comment 0061-47. Substantial evidence confirms the fundamental uncertainty that any currently proposed SGMA project will be implemented and effectively and predictably reduce M&I water use in a manner that that could feasibly mitigate Project water supply impacts under CEQA. Increased produced water reuse is included as an SGMA project in several adopted GSPs and Management Area Plans, and ongoing concerns about such reuse, which are also reflected in the comment, are a significant and substantial reason why such use cannot be reliably and feasibly implemented for Project water supply mitigation. See SREIR (October 2020), Vol. 1., at 4.9-153–156.

Comments have suggested that proposed SGMA demand reduction projects, such as fallowing, could be implemented as a mitigation measure. Project Area GSAs have specifically stated that any such measures would be deferred to the extent possible through adaptive plan management to avoid “a detrimental impact on the local economy, livelihood of residents and business owners, and the well-being of Metropolitan Bakersfield and Kern County” and to preserve “the viability of agriculture” on which Kern County “communities, the economy, and local governments are and have been reliant.” See SREIR (October 2020), Vol. 1, at 4.9-13–14. See Responses to Comments 0009-36, 0009-38, 0009-44, 0009-45, and 0061-54. There is also substantial evidence that, due to the complexity of water rights, water transfer mechanisms, and strategic planning by water rights holders, fallowing without comprehensive additional water use controls can have limited effects on long-term water use. A 2017 study of California water transfer markets, for example, states that there is a “Rule of Fallowed Fields” under which it is “quite difficult to permanently fallow productive land in order to free up water” and that “water users will game the system” for fallowing lands to increase water supplies (Park 2017, pp. 184, 216). This analysis indicates that fallowing alone, without additional water use restrictions and regulations, will not necessarily reduce M&I water demand in a predictable extent over time. See Response to Comment 0061-54.

The comments state that flood control and groundwater recharge projects included as SGMA projects could be funded or undertaken as mitigation for Project water supply impacts. See Response to Comment 006-45. Flood control projects generally have been subject to extensive public, legal and regulatory controversy, in some cases affecting the completion of fully permitted and partially constructed projects. See Rogers (2017). Flood control and recharge projects for SGMA compliance could prove to be successful in the future, after applicable permitting and required mitigation has been completed, and the effects on groundwater have been verified from fully constructed facilities operated over the 50-year SGMA planning and implementation horizon. There is substantial evidence that such projects are subject to considerable uncertainties. A November 2020 article states that the “Manager of DWR’s Division of Planning has often referred to Flood Managed Aquifer Recharge (or Flood MAR) as a ‘moon shot’ for recharging depleted groundwater basins, but just how much Flood MAR can contribute to groundwater recharge in a watershed is unknown. However, the Department of Water Resources’ Integrated Watershed Management staff is underway with a pilot study but just how much Flood MAR can contribute to groundwater recharge in a watershed....” (Maven’s Notebook 2020). The most current DWR study states that “complex technical, legal, and institutional barriers and challenges affect the planning and implementation of Flood MAR, and strategies must be sought to overcome them” (DWR 2018).

There is substantial evidence of opposition to, and uncertainty concerning, the implementation of SGMA projects in general due to the adaptive management and long-term modifications of each plan that will be required to meet SGMA objectives over the 50-year SGMA planning and implementation horizon. There is substantial evidence of opposition to, and/or uncertainty concerning, the implementation of SGMA projects involving demand reduction, including fallowing, increased produced water reuse, and flood control and aquifer recharge proposals. There is no assurance that any specific SGMA project will result in permanent water supply increases or demand reductions that would reduce or avoid Project groundwater impacts in a predictable manner.

The County has no authority to directly regulate or control groundwater pumping, and the SGMA provides such authority only to duly formed GSAs that adopt a GSP in accordance with the SGMA. See SREIR (October 2020), Vol. 1, at 4.9-10-14. Oil and gas operations that require higher quality M&I water are already subject to SGMA-related surcharges for GSP and Management Area Plan implementation. The precise supply enhancement, demand reduction, and other SGMA projects that will be required to achieve SGMA requirements in the Project Area are yet to be determined and will require the balancing of multiple interests, use of still-developing technical information, and adaptive management and long-term monitoring to achieve. The SREIR provides a thorough discussion of implementing SGMA projects to mitigate the Project's water supply impacts and, based on substantial evidence, concludes that this approach is infeasible. See SREIR (October 2020), Vol. 1, at 4.9-10-14, 201-214, and 4.17-77-89. See also Responses to Comments 0061-28, 0061-45, 0061-46, 0061-47, 0009-36, 0009-38, and 0009-44.

0061-45

The comment states that it is unreasonable for the County to conclude that no feasible water supply mitigation measures can be implemented because (1) GSAs in the Project Area have identified measures intended to generate approximately 421,000 AFY to comply with the SGMA, (2) the County has jurisdiction over a larger area than any GSA and may adopt measures in areas not covered by a GSA, and (3) the County has failed to assess the feasibility of each proposed SGMA measure in the Project Area, such as recharge-focused flood-mitigation construction, which the County could take on itself, fund, or adopt in similar, additional projects.

Please see Response to Comment 0061-44. There is substantial evidence of opposition to, concerns about the effectiveness of, and significant uncertainty concerning the implementation of any proposed SGMA projects. The implementation of one or more SGMA projects proposed in Project Area GSPs and Management Area Plans is discussed in detail in the SREIR and was determined to be infeasible for several reasons. The SGMA is a locally based approach to long-term groundwater sustainable management that allows for a variety of approaches and requires that undesirable results be avoided by implementing comprehensive solutions for each applicable basin and subbasin. The formation of GSAs; the adoption of GSPs and Management Area Plans; the development of technical hydrological information at a basin, subbasin, and plan level; and the consideration and integration of a wide range of interests affected by groundwater have never before been attempted, let alone successfully implemented, in California. The adopted GSPs in the Project Area represent initial approaches for implementing the SGMA that will be adaptively managed and revised as necessary to comprehensively meet SGMA requirements over the statutory 20-year compliance period and a 50-year planning and implementation horizon. See SREIR (October 2020), Vol. 1, at 4.9-10-14.

It is virtually certain that the SGMA process, including the identification and implementation of SGMA projects, will be significantly modified during the DWR review process, during successive GSP and Management Area Plan five-year reviews, during the 20-year compliance period, and over the 50-year planning and implementation horizon mandated by the SGMA and the SGMA regulations. See SREIR (October 2020), Vol. 1, at 4.9-214 and 4.17-89. The County has no ability to ensure that any SGMA project will be implemented or will be effective as currently anticipated in SGMA plans that any such project will reduce M&I water use or increase M&I water supplies to a predictable extent and mitigate for Project impacts. Implementing SGMA projects independently from the SGMA process (such as land fallowing proposed in prior comments, or flood control aquifer recharge proposals that the state is currently assessing and for which numerous uncertainties have been documented) would conflict with the express SGMA implementation objectives of GSAs in the Project Area and would not reduce water use to a predictable extent. See SREIR (October 2020), Vol. 1, at 4.9-213 and 4.17-88-89.

The SGMA projects will be implemented in a basin-wide, coordinated manner by the GSAs in accordance with the SGMA to address and respond to these uncertainties over multiple decades. Water Code Section 10726.4(a) provides GSAs with the unique "additional authority" to "regulate groundwater extraction using that authority," including "regulating, limiting, or suspending extractions from individual groundwater wells or extractions from groundwater wells in the aggregate, construction of new groundwater wells, enlargement of existing groundwater wells, or reactivation of abandoned groundwater wells, or otherwise establishing groundwater extraction allocations." The authority of GSAs to directly control

groundwater extractions from individual or basin-wide aggregations of wells to facilitate the adaptive management of SGMA plans and SGMA projects over time represents one of the most significant regulatory innovations created by the SGMA. See SREIR (October 2020), Vol. 1, at 4.9-10–14.

Oil and gas operations that require higher quality M&I water are already subject to SGMA-related surcharges for GSP and Management Area Plan implementation. CEQA does not require that a lead agency create new programs that are already being implemented by other regulatory agencies or the ability to impose costs that are already being assessed for the same purpose, in this case, measures to implement SGMA that include oil and gas use of M&I water regulated under one or more adopted GSPs and Management Area Plans in the Project Area. The implementation or funding of SGMA projects to mitigate for Project water supply impacts is infeasible. See SREIR (October 2020), Vol. 1, at 4.9-10–14, 201–214, and 4.17-77–89. See also Responses to Comments 0061-28, 0061-44, 0061-46, 0061-47, 0009-36, 0009-38, and 0009-44.

0061-46

The comment states that the vast majority of SGMA projects, such as projects that increase recharge, will reliably increase groundwater supplies and that even if such projects do not have a specific water supply result, the SGMA plans provide a reasonable plan for mitigation that is a legally sufficient mitigation measure.

Please see Responses to Comments 0061-44 and 0061-45 for a discussion of the reliability of proposed SGMA projects, including existing opposition and concerns about the implementation and effectiveness of proposed SGMA projects, the ongoing DWR review process for existing SGMA plans in the Project Area, and the virtual certainty that the plans and SGMA projects will be modified through adaptive management over the 50-year SGMA planning and implementation horizon.

The comment cites two cases, *City of San Diego v. Bd. of Trustees of Cal. State Univ.* (2015) 61 Cal.4th 945 (*San Diego*) and *City of Marina v. Bd. of Trustees of Cal. State Univ.* (2006) 39 Cal.4th 341 (*Marina*) for the contention that the SGMA plans are a reasonable plan for mitigation that would meet the requirements of a mitigation measure under CEQA even if they fail to produce a specific result. Both cases are inapplicable. *Marina* concerned the assertion by the California State University (CSU) system that it was not required to fund offsite improvements to be made by the Fort Ord Reuse Authority that the CSU specifically found in approving the applicable project “constitutes the ‘specific measure to mitigate [each of CSUMB’s corresponding environmental impacts] to the level of insignificance.’” The state Supreme Court rejected CSU’s contention that, as an educational institution, it was constitutionally prohibited from funding the specific mitigation measures that CSU itself found would fully mitigate for project impacts. In *San Diego*, the Supreme Court rejected a claim by CSU narrowly focused on dicta in *Marina* that it could not fund mitigation measures that, as in *Marina*, had been found to provide project mitigation, unless the legislature specifically appropriated funding for such purposes. In both cases, the primary question before the court was whether CSU could construe state law (*Marina*) or dicta in *Marina* (*San Diego*) to avoid funding mitigation that CSU had explicitly determined would reduce project impacts to less than significant levels.

The cases assume that the mitigation plans identified by CSU would predictably mitigate project impacts. The SGMA plans are not comparable with the mitigation requirements identified by CSU in *Marina* and *San Diego*. The SGMA is a locally based approach to long-term groundwater sustainable management that allows for a variety of approaches and requires that undesirable results be avoided by implementing comprehensive solutions for each applicable basin and subbasin. The formation of GSAs; the adoption of GSPs and Management Area Plans; the development of technical hydrological information at a basin, subbasin, and plan level; and the consideration and integration of a wide range of interests affected by groundwater have never before been attempted, let alone successfully implemented, in California. The adopted GSPs in the Project Area represent initial approaches for implementing the SGMA that will be adaptively managed and revised as necessary to comprehensively meet SGMA requirements over the statutory 20-year compliance period and a 50-year planning and implementation horizon. See SREIR (October 2020), Vol. 1, at 4.9-10–14.

There is substantial evidence of existing opposition to and uncertainty concerning the implementation and effectiveness of several SGMA projects. It is virtually certain that currently proposed SGMA projects will be substantially modified as the GSAs adaptively manage GSPs and Management Area Plans, including the consideration and integration of a wide range of interests as mandated by the SGMA. Please see Response to Comment 0061-47. The County has no ability to ensure that any SGMA project will be implemented or effective as planned in reducing M&I water use or increasing M&I water supplies and mitigate for Project impacts to any predictable extent. Please see Response to Comment 0061-45. The SGMA projects do not provide a predictable means for mitigating Project water supply impacts. See SREIR (October 2020), Vol. 1, at 4.9-10–14, 4.9-201–214, and 4.17-77–89. See also Responses to Comments 0061-28, 0061-44, 0061-45, 0061-47, 0009-36, 0009-38, and 0009-44.

0061-47

The comment states that the County continues to rely on the SGMA to avoid its obligation to mitigate water supply impacts under CEQA, incorrectly asserts that it has no authority to directly regulate or control groundwater pumping, and states that the majority of proposed SGMA projects do not involve direct regulation or control of groundwater pumping.

Please see Responses to Comments 0009-35, 0009-36, and 0009-37. The comment accurately states that “SGMA implementation is a dynamic 20-year process and that it is not clear how it will unfold or what projects will be worth implementing.” Due to this uncertainty, and several other considerations discussed in the SREIR, the County determined on the basis of substantial evidence that implementing SGMA projects to mitigate potential Project water supply impacts is infeasible. The SGMA is a locally based approach to long-term groundwater sustainable management that allows for a variety of approaches and requires that undesirable results be avoided by implementing comprehensive solutions for each applicable basin and subbasin. The formation of GSAs; the adoption of GSPs and Management Area Plans; the development of technical hydrological information at a basin, subbasin, and plan level; and the consideration and integration of a wide range of interests affected by groundwater have never before been attempted, let alone successfully implemented, in California. The adopted GSPs in the Project Area represent initial approaches for implementing the SGMA that will be adaptively managed and revised as necessary to comprehensively meet SGMA requirements over the statutory 20-year compliance period and a 50-year planning and implementation horizon. See SREIR (October 2020), Vol. 1, at 4.9-10–14. It is virtually certain that the SGMA process, including the identification and implementation of SGMA projects, will be significantly modified during the DWR review process, during successive GSP and Management Area Plan five-year reviews, during the 20-year SGMA compliance period, and over the 50-year planning and implementation horizon mandated by the SGMA and the SGMA regulations. See SREIR (October 2020), Vol. 1, at 4.9-214 and 4.17-89. The County has no ability to ensure that any SGMA project will be implemented or will be effective as currently anticipated in SGMA plans or that any such project will reduce M&I water use or increase M&I water supplies to a predictable extent and mitigate Project impacts.

Implementing SGMA projects independently from the SGMA process (such as land fallowing as proposed in prior comments, or flood control aquifer recharge proposals that the state is currently assessing and for which numerous uncertainties have been documented) would conflict with the express SGMA implementation objectives of GSAs in the Project Area and would not reduce water use to a predictable extent. See SREIR (October 2020), Vol. 1, at 4.9-213 and 4.17-88–89. See also Responses to Comments 0061-44 and 0061-54. SGMA projects will be implemented in a basin-wide, coordinated manner by the GSAs in accordance with the SGMA to address and respond to these uncertainties over multiple decades. Water Code Section 10726.4(a) provides GSAs with the unique “additional authority” to “regulate groundwater extraction using that authority,” including “regulating, limiting, or suspending extractions from individual groundwater wells or extractions from groundwater wells in the aggregate, construction of new groundwater wells, enlargement of existing groundwater wells, or reactivation of abandoned groundwater wells, or otherwise establishing groundwater extraction allocations.” The authority of GSAs to directly control groundwater extractions from individual or basin-wide aggregations of wells to facilitate the adaptive management of SGMA plans and SGMA projects over time represents one of the most significant regulatory innovations created by SGMA. See SREIR (October 2020), Vol. 1, at 4.9-10–14.

Oil and gas operations that require higher quality M&I water are already subject to SGMA-related surcharges for GSP and Management Area Plan implementation. CEQA does not require that a lead agency create new programs that are already being implemented by other regulatory agencies or the ability to impose costs that are already being assessed for the same purpose, in this case measures to implement the SGMA that include oil and gas use of M&I water regulated under one or more adopted GSPs and Management Area Plans in the Project Area. The implementation or funding of SGMA projects to mitigate for Project water supply impacts is infeasible. See SREIR (October 2020), Vol. 1, at 4.9-10–14, 4.9-201–214, and 4.17-77–89. See also Responses to Comments 0061-28, 0061-44, 0061-46, 0061-47, 0009-36, 0009-38, and 0009-44. The SREIR accurately reflects the exclusive role of the GSAs in implementing the SGMA, including the regulation of groundwater extraction under the SGMA. See SREIR (October 2020), Vol. 1, at 4.9-10–14.

0061-48

The comment states that the SREIR dismisses potential mitigation measures suggested in prior comments with factual conclusions unsupported by substantial evidence and legal conclusions that are generally incorrect.

Please see Responses to Comments 0061-49, 0061-50, 0061-51, 0061-52, 0061-53, 0061-54, 0009-36, 0009-42, and 0009-43. The SREIR provides a thorough discussion of the feasibility of implementing drilling restrictions, banning the use of M&I water for oil and gas use, and other demand reduction measures, such as fallowing, and determined that these measures would not predictably reduce Project water supply impacts and would be infeasible. See SREIR (October 2020), Vol. 1, at 4.9-209–214 and 4.17-84–89.

0061-49

The comment states that the SREIR (October 2020) identifies two reasons in addition to those discussed in SREIR (August 2020) for determining that it is infeasible to mitigate Project water supply impacts by limiting oil and gas activity or reducing or banning the use of higher quality water for oil and gas activities.

Please see Responses to Comments 0061-48, 0061-50, 0061-51, 0061-52, 0061-53, 0061-54, 0009-36, 0009-42, and 0009-43. The SREIR provides a thorough discussion of the feasibility of limiting oil and gas activity and banning the use of M&I water for oil and gas use and determined that these measures would not predictably reduce Project water supply impacts and would be infeasible. See SREIR (October 2020), Vol. 1, at 4.9-209–214 and 4.17-84–89.

0061-50

The comment states that the SREIR is legally incorrect in stating that the County has no jurisdiction over groundwater allocations.

Please see Responses to Comments 0061-47 and 0009-36. The SREIR provides a thorough discussion of the feasibility of limiting oil and gas activity and banning the use of M&I water for oil and gas use and determined that these measures would not predictably reduce Project water supply impacts and would be infeasible. See SREIR (October 2020), Vol. 1, at 4.9-209–214 and 4.17-84–89. The SREIR accurately reflects the exclusive role of the GSAs in implementing the SGMA, including the regulation of groundwater extraction under the act. See SREIR (October 2020), Vol. 1, at 4.9-10–14.

0061-51

The comment states that the SREIR focuses exclusively on the growth of the oil and gas industry in finding that limiting oil and gas activity would not feasibly mitigate for water supply impacts.

The SREIR considers the feasibility of potential water supply impact mitigation with reference to multiple criteria, including:

- Regulatory uncertainty;
- Produced water treatment and other technological limitations;
- Lack of sufficient recycled and produced water treatment conveyance and distribution facilities;
- Economic factors, including factors identified in Project Area GSPs and Management Area Plans;
- Engineering and safety concerns related to the need for higher quality water in certain oil and gas operations;
- Potential generation of new significant environmental impacts, such as increased air and greenhouse gas emissions required to expand produced water treatment, building and operating newly produced and recycled water conveyance and distribution facilities, or using heavy vehicles to deliver M&I water;
- GSP and Management Area Plan revisions that will occur at least at five-year intervals over the multi-decade SGMA process, including the high probability that Project Area SGMA projects will be substantially modified over time; and
- The fact that GSAs with authority to implement SGMA plans in the Project Area have specifically stated that certain SGMA projects, such as agricultural land fallowing, would cause substantial social and economic harm and that efforts would be made to avoid such measures by adaptive plan management.

See SREIR (October 2020), Vol. 1, at 4.9-208–215, 219–221, 4.17-82–92, 4.17-96–97. These criteria include, but are not limited to, avoiding exposure to substantially significant liability for regulatory taking claims, including significant litigation costs and related budgetary and management uncertainty involved in resolving any such claims, and the fact that the limitation of oil and gas activity is inconsistent with one of the Project's primary purposes, which is to encourage and expand one of the County's largest and most essential industries with a ministerial permitting program, subject to specific permitting criteria and new and expanded environmental protections. See SREIR (October 2020), Vol. 1, at 4.9-209, 4.17-84–85. See also Responses to Comments 0061-88 through 0061-95, 0009-40, 0009-41, 0009-58, 0009-60, and 0009-84 through 0009-89.

The SREIR provides substantial evidence of the economic importance and significant, adverse social consequences that would be associated with a decline in the oil and gas industry. Kern County accounts for approximately 80 percent of total California oil and gas production, and remains one of the largest oil and gas producing counties in the United States. Six of the 10 largest property taxpayers in the County are oil and gas companies, and the industry generates approximately \$925 million in state

and local tax revenues and \$1.6 billion in labor income per year. Oil and gas companies directly employ 14,213 people and indirectly generate 9,687 jobs in Kern County. From 2014 to 2016, the oil and gas sector contracted as global oil prices fell. The total assessed value of property in the County fell by over \$12 billion, and in fiscal year 2016–2017, the County experienced a budget deficit of \$44.5 million and declared a fiscal emergency. By 2019, oil prices recovered to about \$55 per barrel, and most of the 2016–2017 deficit could be retired by the County. The COVID-19 pandemic also resulted in an unprecedented rapid and large increase in County unemployment and depressed oil and gas prices, circumstances that have been identified by County officials as severe as or more difficult than the 2016–2017 conditions that triggered the County’s four-year fiscal emergency. See SREIR (October 2020), Vol. 1, at 4.17-1–2.

The SREIR properly evaluates the potential of mitigating water supply impacts by limiting oil and gas activity with permit quotas or similar measures with reference to multiple considerations and criteria that include one of the Project’s primary purposes, which is to facilitate the continued development of one of the County’s largest and most essential industries with a ministerial permitting program, subject to specific permitting criteria and new and expanded environmental protections. See Responses to Comments 0061-44, 0061-47, 0009-36, and 0009-40.

0061-52

The comment states that the SREIR’s statement that “simply reducing the number of oil and gas wells drilled may not actually reduce groundwater used” is unsupported. The comment further states that the “idea that a voluntary cut in water use for oil and gas purposes would simply result in an increase in use elsewhere is not plausible—the GSAs in the Project Area must cut usage substantially if they are to comply with SGMA.”

The SREIR provides a thorough and comprehensive discussion of the uncertainties of implementing demand management measures, including oil and gas drilling restrictions, to mitigate potential Project water impacts. The SREIR considered each GSP and Management Area Plan adopted for any portion of the Project Area and evaluates the extent to which oil and gas operations were identified as a significant factor affecting the achievement of SGMA objectives for applicable subbasins and basins over the SGMA 50-year planning and implementation horizon, which extends to 2070. None of the adopted GSPs or Management Areas Plans within the Project Area identify oil and gas operations as a significant factor affecting the achievement of any of the SGMA objectives or include oil and gas–related activity as a significant net consumer or other factor reducing available supplies over time. Almost all of the GSPs and Management Area Plans explicitly exclude oil and gas operational areas and exempted aquifers under the UIC program from SGMA-regulated groundwater basins. Several identify the potential use of treated and/or blended oil and gas produced water as a potential source of new imported water that would increase available supplies for agricultural irrigation purposes and reduce potential groundwater demand over time. See SREIR (October 2020), Vol. 1, at 4.9-37–60 and SREIR (October 2020), Vol 2, Appendix D. The development of these resources and the avoidance of demand reduction measures and related social and economic harm is identified as an adaptive management objective by Project Area GSAs. See SREIR (October 2020), Vol. 1, at 4.9-13–14.

The SREIR correctly states that “simply reducing the number of oil and gas wells drilled may not actually reduce groundwater used because the groundwater being used by the oil companies primarily comes from water districts who will then move the water to another use in the basin. The determination of which land use should use water and which land use should be restricted from using water is a policy decision for the Kern County Board of Supervisors and not a CEQA determination.” See SREIR (October 2020), Vol. 1, at 4.9-209. The comment does not address this analysis but instead states that it is not plausible that “a voluntary cut in water use for oil and gas purposes” would result in an increase in use elsewhere. The SREIR does not evaluate voluntary water use reductions by oil and gas operators as a potential mitigation measure because, by definition, any such reduction would be voluntary and unenforceable and would not predictably reduce M&I water use over time. The potential effectiveness of voluntary actions has no bearing on the fact that mandating a reduction in oil and gas well drilling would be ineffective without other actions preventing the reallocation of unused M&I water to other users. A 2017 study of California water transfer markets, for example, analyzed the curtailment of water use by water sellers and concluded that “water users will game the system” and will attempt to “have their cake and eat it too” (Park 2017, pp. 183, 216). This analysis indicates that attempting to curtail water use by limiting surface activities, including oil and gas drilling limitation or allowing, will not necessarily reduce M&I water demand in a predictable extent over time, without additional water use restrictions and regulations. The County does not have the authority to implement water use limitations of this magnitude. The authority of GSAs to directly control groundwater extractions and water use affecting groundwater conditions from individual or basin-wide aggregations of wells represents one of the most significant regulatory innovations created by SGMA. See SREIR (October 2020), Vol. 1, at 4.9-10–14. The SREIR’s analysis of mitigating for water supply impacts by limiting oil and gas well drilling fully discusses the likelihood that this measure would result in M&I water use reallocation rather than predictable and certain M&I water use reductions and concludes it would be infeasible.

0061-53

The comment states that the SREIR conclusion that reducing oil and gas industry M&I water use by increasing the industry's use of treated produced water is speculative and unsupported because produced water has been treated and reused in the past in the Project Area.

The SREIR provides a thorough and comprehensive discussion of the use of treated produced water for oil and gas, as well as irrigation purposes, in the Project Area and states that it may be possible to increase such uses in the future. Certain oil and gas operations, such as well drilling and abandonment work, require high quality water to properly formulate the cement mixtures needed to safely drill and abandon wells. Steam generation required for oil and gas production can also require higher quality water supplies than are typically obtained from treated produced water to avoid equipment corrosion or damage and potential chemical interactions. Use of produced water in certain oil and gas operations can also lead to increased need for equipment maintenance due to, for example, silica buildup or tube failures in boilers. Using untreated or lower quality produced water for these activities would jeopardize the operators' ability to comply with regulatory requirements applicable to well construction and abandonment and the safe operation of oil field equipment, including the avoidance of corrosion.

From 2015 to 2019, when MM 4.17-2 to 4.17-4 in the 2015 FEIR were in effect, certain oil and gas operators were able to implement measures to reduce oil and gas use of higher quality M&I water, and additional measures were planned for future periods. Please see WSPA (2020). While this information shows that it may be possible to encourage reduced M&I water use, it does not demonstrate that any such reduction can be feasibly implemented by oil and gas operators in a manner that will reduce Project water supply impacts to a predictable extent and on a widespread basis throughout the Project Area. The Project Area lacks the necessary infrastructure for treating and conveying large volumes of treated produced water or recycled water for oil and gas use. See SREIR (October 2020), Vol. 1, at 4.9-209–212, 4.17-85–87. The reuse of additional produced water could require more intensive, technically demanding, and more costly forms of treatment that generate other environmental effects related to increased energy use and air quality and greenhouse gas emissions, or post-treatment waste stream disposal. See SREIR (October 2020), Vol. 1, at 4.9-180–181.

The comment further states that the discussion of technical, economic, regulatory, and environmental uncertainties affecting the potential treatment and reuse of up to 50,000 AFY of produced water and groundwater identified in the WDWA Management Area Plan is not relevant because treated produced water could be provided from other Management Area Plan or GSP areas. Prior comments noted that the Western Subarea of the Project utilizes a large proportion of total oil and gas M&I supplies for EOR because existing water quality is particularly poor, which also affects the quality of produced water. See Response to Comment 0009-42. The SREIR discusses the produced water and groundwater treatment and reuse uncertainties identified in the WDWA Management Area Plan because the plan is located in the western Project Subarea and provides the most current information concerning such reuse. The plan states that "a significant percentage of the oil field produced water in the WDWA is either recycled into the same geologic zones it was produced from for the purpose of EOR or is sequestered in deeper zones that are isolated from underground sources of drinking water. Like groundwater in the WDWA in general, produced oil field water is naturally degraded and exhibits elevated levels of TDS [total dissolved solids]. The concentrations of TDS and crude oil residual in untreated produced water make it unsuitable for any beneficial use without treatment." See SREIR (October 2020), Vol. 1, at 4.9-51. The plan states that the WDWA is undertaking a feasibility study (FS) of whether produced water and groundwater can be treated for beneficial reuse in the SGMA basin, including an analysis of:

the viability of the project for regulatory acceptance, potential for undesirable results (e.g. significant subsidence), and for the economics of treating both brackish groundwater and oil field produced waters in a distributed modular facility via the use of readily available membrane technologies, such as reverse osmosis (RO). Treatment technologies to be assessed would include pre-treatment, pH adjustment and filtration followed by either a single-pass RO configuration, a double-pass RO, or a RO modification called a closed-circuit RO. Treated water quality would, at a minimum, meet Basin Plan requirements. Project FS components include: Evaluating existing hydrogeologic data pertaining to brackish groundwater and oil field produced water quality, water use, and volumes; Development of preliminary engineering options and costs for siting the treatment facility, source wells, water treatment, energy demand, concentrate disposal, and treated water transmission; Examination of the potential for undesirable results (e.g. subsidence); and Assessment of permitting and public notification requirements (California Environmental Quality Act [CEQA], etc.) [and that] ... the feasibility of any such treatment and reuse is under investigation and subject to several unresolved technical and economic uncertainties. SREIR (October 2020), Vol. 1, at 4.9-56.

The WDMA Management Area Plan discussion provides substantial evidence that the reuse of locally available produced water or groundwater for EOR or other purposes is subject to significant uncertainty. The SREIR discusses the adverse environmental impacts that could occur from the reuse of additional produced water, especially lower quality produced water due to the need for more intensive, technically demanding and more costly forms of treatment that would result in increased energy use and air quality and greenhouse gas emissions, or post-treatment waste stream disposal. See SREIR (October 2020), Vol. 1, at 4.9-180–181. Absent the capacity to treat and use local produced water or groundwater for EOR purposes, oil and gas operators in the Western Subarea would be required to treat additional amounts of produced water and obtain M&I supplies from more remote locations, including portions of the Project Area subject to other GSPs and Management Area Plans, and would need to deliver such supplies by using heavy equipment. This treatment and heavy vehicle activity would require additional permitting processes to avoid adverse secondary environmental impacts, including increased energy and vehicular use and greenhouse gas emissions. See SREIR (October 2020), Vol. 1, at 4.9-211–212. Consequently, the discussion of the WDMA in the SREIR provides substantial evidence that curtailing oil and activities with a permit quota or similar measure, or banning M&I water use by oil and gas operators would be economically, socially, environmentally, and technologically infeasible. See SREIR (October 2020), Vol. 1, at 4.9-210–213 and 4.17-86–87.

0061-54

The comment states that the SREIR analysis of the feasibility of demand reduction measures to reduce Project water supply impacts, including land fallowing activities conducted by GSAs in conjunction with SGMA plans, and additional land fallowing that the County could directly implement is incorrect or unsupported.

The implementation of one or more SGMA projects proposed in Project Area GSPs and Management Area Plans, including demand reduction measures and fallowing, is discussed in detail in the SREIR and was determined to be infeasible for several reasons. The SGMA is a locally based approach to long-term groundwater sustainable management that allows for a variety of approaches and requires that undesirable results be avoided by implementing comprehensive solutions for each applicable basin and subbasin. The formation of GSAs; the adoption of GSPs and Management Area Plans; the development of technical hydrological information at a basin, subbasin, and plan level; and the consideration and integration of a wide range of interests affected by groundwater have never before been attempted, let alone successfully implemented, in California. The adopted GSPs in the Project Area represent initial approaches for implementing the SGMA that will be adaptively managed and revised as necessary to comprehensively meet SGMA requirements over the statutory 20-year compliance period and a 50-year planning and implementation horizon. See SREIR (October 2020), Vol. 1, at 4.9-10–14.

Section 355.2(e) of the SGMA emergency regulations adopted by the DWR in 2016 provides that the DWR shall evaluate a GSP “within two years of its submittal date and issue a written assessment” including if the GSP is approved, incomplete, or inadequate. The adopted GSPs and Management Area Plans were submitted on January 31, 2020, and the DWR has until January 31, 2022, to complete the review process. The DWR review process, including the issuance of a written assessment determining if each plan is approved, incomplete, or inadequate, has not been completed for any of the Project Area GSPs or Management Area Plans. See SREIR (October 2020), Vol. 1, at 4.9-164. The SGMA process, including the identification and implementation of SGMA projects, will likely be significantly modified during the DWR review process, successive GSP and Management Area Plan five-year reviews, during the 20-year compliance period, and over the 50-year planning and implementation horizon mandated by the SGMA and the SGMA regulations. See SREIR (October 2020), Vol. 1, at 4.9-214 and 4.17-89.

Several of the proposed SGMA projects include demand reduction measures, such as fallowing, that the GSAs have specifically stated would be deferred to the extent possible through adaptive plan management to avoid “a detrimental impact on the local economy, livelihood of residents and business owners, and the well-being of Metropolitan Bakersfield and Kern County” and to preserve “the viability of agriculture” on which Kern County “communities, the economy, and local governments are and have been reliant.” See SREIR (October 2020), Vol. 1, at 4.9-13. There is substantial evidence of GSA concern to protect and preserve Project Area communities by avoiding SGMA projects involving demand reduction. The SREIR determined that, due to these uncertainties, attempting to mitigate Project water supply impacts by implementing SGMA project demand reduction measures, including fallowing, would not result in predictable M&I water use reductions and was infeasible.

The comment states that since demand reduction measures are being implemented under some of the SGMA plans, it is inconsistent to note that demand reduction, including fallowing, is inconsistent with the GSAs stated adaptive management objectives to avoid such measures. The extent to which demand reduction, and the associated harm to Project Area communities, will be necessary and effective is one of the most important management issues that the GSAs will be required to evaluate by adaptively managing the SGMA plans over the 50-year planning and implementation horizon. None of these issues are settled or known with sufficient certainty to facilitate a predictable means of mitigating for Project water supply

impacts. The determination of which land use should use water and which land use should be restricted from using water is a policy decision for the Kern County Board of Supervisors and not a CEQA determination. See SREIR (October 2020), Vol. 1, at 4.9-209.

The comment states that the SREIR's determination that fallowing, without complementary basin-wide water use reallocations and restrictions, would not necessarily reduce M&I water demand is unsupported and contrary to common sense. The comment cites projected reductions from fallowing in certain GSPs in the Project Area as evidence that fallowing is effective. These projections are one of several proposed SGMA projects that are under review by the DWR, subject to mandatory evaluation every five years, and will almost certainly be modified over the 50-year SGMA planning and implementation horizon. See SREIR (October 2020), Vol. 1, at 4.9-214 and 4.17-89. There is substantial evidence that, due to the complexity of water rights, water transfer mechanisms and strategic planning by water rights holders, fallowing without comprehensive additional water use controls can have limited effects on long-term water use. A 2017 study of California water transfer markets, for example, states that there is a "Rule of Fallowed Fields" under which it is "quite difficult to permanently fallow productive land in order to free up water" and that "water users will game the system" for fallowing lands to increase water supplies (Park 2017, pp. 184, 216). This analysis indicates that fallowing alone, without additional water use restrictions and regulations, will not necessarily reduce M&I water demand to a predictable extent over time. The County does not have the authority to implement water use limitations of this magnitude. The authority of GSAs to directly control groundwater extractions and water use affecting groundwater conditions from individual or basin-wide aggregations of wells represents one of the most significant regulatory innovations created by the SGMA. See SREIR (October 2020), Vol. 1, at 4.9-10-14. The SREIR's analysis of mitigating for water supply impacts by fallowing accurately discusses the likelihood that this measure would result in M&I water use reallocation rather than predictable and certain M&I water use reductions and as such is infeasible to implement to predictably reduce Project water supply impacts.

0061-55

The comment states that MM 4.17-5 is not adequately defined because it does not identify a plan or program for using funds and does not explain how such funding constitutes a fair share of any measure to mitigate cumulative harms to disadvantaged communities as a result of water supply impacts.

The SREIR shows that the Project could result in an increased use of M&I water from approximately 8,778 AFY in the baseline year of 2012 and 9,660 AFY in 2015 to 11,760 AFY in 2035. This potential M&I water use would be 2,982 AFY more than the 2012 baseline consumption and 2,100 AFY above 2015 consumption. Total M&I water use for oil and gas purposes would amount to 0.34 percent in 2012 to 0.4 percent in 2035 of total Project Area M&I water demand. The potential increase in M&I water demand of 2,982 AFY above the 2012 baseline consumption, and 2,100 AFY above the 2015 consumption, would be approximately 0.102 percent and 0.072 percent of Project Area M&I demand in 2035. See SREIR (October 2020), Vol. 1, Table 4.17-26, at 4.17-70, and Table 4.17-31, at 4.17-75.

MM 4.17-5 requires that oil and gas applicants subject to Oil and Gas Conformity Review pay a \$250 mitigation fee per well and those subject to Minor Activity Reviews pay \$50 per well. These funds will be deposited into a Disadvantaged Community Drinking Water Grant Fund to be implemented by Kern County Public Health in the form of grants available only for projects in disadvantaged communities in the San Joaquin Valley portion of Kern County. The use of the grant funding would be targeted for the design, permitting, and construction of physical improvements to water wells or water systems serving the disadvantaged community and primarily would act as matching funds for larger grant opportunities from other sources. Based on the average permitting activity, this mitigation will generate an estimated \$460,000 annually. See SREIR (October 2020), Vol. 1, at 4.17-96. Using the more conservative estimate of total oil and gas M&I water use relative to total M&I water use in 2035 (0.4 percent), the annual funding provided by MM 4.17-5 represents the oil and gas sector's share of \$115 million per year of funding to address disadvantaged community water supply issues in the Project Area. This contribution significantly exceeds, on a fair share basis, the annual amount of safe drinking water funding proposed (and temporarily provided through 2020 by the legislature) in order to address statewide concerns that include, but are not limited to, disadvantaged communities.

SB 623 (2017-2018 Reg. Sess.), for example, would have generated approximately \$140 million per year from taxes or fees on nonexempt water users and certain agricultural activities in the state. SB 623 failed in the legislature, and in July 2019 California enacted SB 200 (2019), which provides \$130 million per year to address the provision of safe drinking water, including but not limited to disadvantaged communities, throughout the entire state (Wilderness News Network 2019). Kern County, which has about 2.2 percent of the state's population, will receive a small portion of this funding, some of which may be allocated to Project Area disadvantaged communities. MM 4.17-5 will generate nearly a half million dollar per year of safe drinking water funding exclusively for the benefit of Project Area disadvantaged communities from M&I water use that is

projected to be just 0.4 percent of total Project Area M&I demand in 2035 and that accounts for a minute proportion of total state water use. The funding provided by MM 4.17-5 would not be subject to the political uncertainty that precluded the passage of SB 623 and provided statewide funding only through 2030 in accordance with SB 200.

The comment states that a recent Water Foundation study has estimated that it would cost up to \$359 million to maintain and restore the use of existing drinking water wells in the San Joaquin Valley. The study estimates that, by 2040, it is possible that 4,000 to 12,000 drinking water wells in the valley could go partially or completely dry unless this risk is addressed prior to 2040. If the estimated well impacts did occur by 2040, the study suggests that it could cost between \$88 million and \$359 million to restore access to drinking water. As with state funding, the Water Foundation's estimates for remediating hypothetical impacts that could occur by 2040 pertain to a much larger geographic region than the Project Area, and these estimates are not limited to disadvantaged communities. The study further states that "While these findings are deeply disturbing, they are not carved in stone. State regulatory agencies can work with these GSAs over the next two years to implement SGMA in a manner that avoids or mitigates these impacts, achieves groundwater sustainability by 2040, and strengthens the right to water for all California residents" (Water Foundation 2020, p. 7).

MM 4.17-5 provides an annual source of funding solely for the benefit of Project Area disadvantaged communities that equates on a fair share basis to several times the funding that would have been generated for these communities by the state's proposed water taxes and fees or is likely to be allocated through the state's current fund authorized through 2030. On a fair share basis, the annual funding generated by MM 4.17-5 also equates to several times the \$88 million to \$359 million estimated in the Water Foundation study to address the potential loss of drinking water wells that could occur by 2040 for the entire San Joaquin Valley. The annual funding generated by MM 4.17-5 will be maintained in a dedicated Disadvantaged Community Drinking Water Grant Fund that will provide grants for projects in disadvantaged communities in the Valley portion of Kern County, including in incorporated cities, for the design, permitting, and construction of physical improvements to water wells or water systems serving these communities. These dedicated funds will supplement existing funding available from the state, as well as drinking water programs implemented through the SGMA process as discussed in the Water Foundation study, to improve safe drinking water access for disadvantaged communities in the Project Area. MM 4.17-5 represents an annual source of fair share funding reserved for mitigating potential impacts to Project Area disadvantaged communities related to the oil and gas industry's share of Project Area M&I water demand. The funding will be administered as a grant program solely for the benefit of Project Area disadvantaged communities. The implementation of MM 4.17-5 therefore provides a unique and dedicated annual funding source for the Project Area's disadvantaged communities and mitigates the Project's cumulative potential water supply impacts to these communities.

0061-56

This comment refers back to the September 16, 2020, comments stating that the Project is inconsistent with some provisions of the Kern County General Plan with respect to the Project's water use and accompanying analysis, and states that the September comment was not taken into account in the SREIR (October 2020).

Please see Response to Comment 0009-54, addressing the substance of the September 16, 2020, comment. The substantive issues raised in that comment and reiterated here were previously addressed in the 2015 FEIR and do not rise to the level of "significant new information" requiring analysis in either the SREIR (August 2020) or the SREIR (October 2020). Please see GR-1 – Beyond the Scope of the SREIR. Here, the issues raised by the comment regarding inconsistency with the County's General Plan with respect to the water supply analysis are not within the scope of the water supply-related defects identified in the Court of Appeal's decision and Modified Judgment. The issue of consistency with the County's General Plan that had been raised in the 2015 FEIR proceedings was adjudicated by the Superior Court and was not appealed to the Court of Appeal.

0061-57

This comment states that the greenhouse gas mitigation measure should have been changed to reflect new legal authority *Golden Door Properties, LLC v. County of San Diego* (2020) 50 Cal.App.5th 467 (*Golden Door*). The comment states that, in *Golden Door*, a mitigation measure similar to the Project's MM 4.7-4 was invalidated, that there is no information that adequate offsets exist, that verification and compliance with California is infeasible, and that the measure is improperly deferred.

Please see GR-1 – Beyond the Scope of the SREIR. The recent opinion in *Golden Door*, including the specific holdings referenced in the comment, is not significant new information or changed circumstances under CEQA and does not require changes to the SREIR. See Response to Comment 0009-54, discussing what constitutes significant new information; see also *Concerned Dublin Citizens v City of Dublin* (2013) 214 Cal.App.4th 1301 (the adoption of new guidelines for evaluation of greenhouse gas emissions was not significant new information requiring further CEQA review because information about the

potential effects of those emissions was known and could have been addressed in connection with the certification of the original EIR). In *Golden Door*, the mitigation measure invalidated by the court would have provided for greenhouse gas emissions mitigation solely through the purchase of offsets. MM 4.7-4 requires each applicant to offset Project-related greenhouse emissions to "no net increase" in one of three ways: (1) through applicant reductions of greenhouse emissions as verified by the County; (2) by acquiring offset credits from either the California Air Pollution Control Officers Association Exchange Register or other third party greenhouse offset programs, as verified by the SJVAPCD and the County; or (3) through inclusion in an ERA.

In verifying the greenhouse gas emissions reductions, the County has always been—and remains—subject to the governing authorities, particularly the interpretation of Assembly Bill 32, as relevant here. MM 4.7-4 is designed to achieve net zero greenhouse gas emissions in concert with the Project's other greenhouse emissions mitigation measures: MM 4.7-1, requiring compliance with the Cap-and-Trade regulation and Best Performance Standards established by the SJVAPCD for permitted stationary sources; MM 4.7-2, requiring compliance with applicable Cap-and-Trade regulations and any other applicable greenhouse gas emission control and reduction regulations subsequently adopted; and MM 4.7-3, requiring recovery of methane in associated gas and casinghead gas. Taking into account this context, the effectiveness and validity of MM 4.7-4 was established during the litigation involving the 2015 FEIR. The trial court determined that the measure was effective and addressed the validity of the measure at length, and the issue was not taken up on appeal to the higher court. *Vaquero Energy, Inc., et al. v. County of Kern* (2018) Case No. BCV-15-101645, Opinion at p. 28–31. MM 4.7-4, and its multi-pronged approach to greenhouse gas emissions reductions, does not need to be changed.

0061-58

The comment states that the SREIR (August 2020)'s analysis of the "Fewer Wells Within the Project Footprint Alternative with a 2,500-foot Setback" is deficient because the SREIR has failed to consider field studies showing an association between proximity to oil and gas production wells and various health impacts and that the SREIR (October 2020) does not remedy this purported deficiency. The comment states that such studies consistently document health risks at distances exceeding 210 feet and that the SREIR has not attempted to evaluate the adequacy of setback mitigation measures in light of the findings of these studies.

Please see Response to Comment 009-62, GR-6 – Health Risk Assessments, and the Health Studies Chart attached to Response to Comments set 0009. The comment is incorrect in its assertion that the SREIR (October 2020) fails to consider field studies that investigated associations between proximity to oil and gas activities and health effects. The SREIR (October 2020) was revised, in part, to summarize and disclose the findings of the many health studies in Sections 4.3, Air Quality; 4.9, Hydrology; and 4.12, Noise. The SREIR (October 2020) explained the findings, as well as limitations, deficiencies, and geographic differences (if any), of each study to provide the public and decisionmakers with an updated account of studies that have been published subsequent to the 2015 FEIR that investigated health effects that may be associated with oil and gas development. A more in-depth analysis of the health studies and their objectives, findings, and conclusions is included in the Health Studies Chart attached to Response to Comments set 0009.

In each case, the SREIR determined that the specific health effects that were the focus of a particular study (e.g., cardiovascular disease, respiratory disease, adverse birth defects) have been analyzed and disclosed in the 2015 FEIR and the SREIR in multiple ways. First, the 2015 FEIR and the SREIR qualitatively disclosed numerous types of health effects that are associated with exposure to specific criteria air pollutants and toxic air contaminants (TACs). See SREIR (October 2020), Vol. 1, at 4.3-11–28. In addition to these numerous qualitative disclosures, the 2015 FEIR performed three separate HRAs to provide a quantitative assessment of the dispersion of substances associated with oil and gas drilling and production and the potential for human exposure. The HRAs were performed pursuant to the Office of Environmental Health Hazards Agency (OEHHA), Air Toxics Hot Spots Program Risk Assessment Guidelines. HRAs performed pursuant to the OEHHA's 2015 guidelines must assess not only cancer risk, but also acute and chronic non-cancer risks, to which the OEHHA has developed reference exposure levels that are specifically tailored to target organ systems (e.g., cardiovascular system, reproductive and development systems, nervous systems). See GR-6. The Revised HRA quantified and assessed exposure from substances associated with oil and natural gas drilling and processing equipment, and in each case found that acute and chronic exposure fell beneath the regulatory threshold of 1.0. The 2015 FEIR and the SREIR explain that MM 4.3-5 establishes setback distances that protect occupants of sensitive use properties from exposure to potentially harmful concentrations of TACs. This mitigation trigger distance was established based on multiple HRA studies included in Appendix B to the SREIR.

The studies submitted with the comments are analyzed and disclosed in the SREIR (October 2020) and will be considered by the County decisionmakers. However, none of the studies presents information that calls into question the sufficiency of the

2015 FEIR's and SREIR's analyses of health impacts from oil and gas development activities, nor the health risk-based setback distances supported by the HRAs.

0061-59

This comment states that the SREIR (October 2020)'s supplemental analysis of takings liability associated with a 2,500-foot setback is inadequate. The comment prefaces more detailed comments that follow below; accordingly, please see Responses to Comments 0061-88 through 0061-95 which further address the comments related to the potential takings liability associated with a 2,500-foot setback alternative.

0061-60

The comment states that the SREIR (August 2020) failed to consider a larger number of field studies conducted in recent years demonstrating an association between proximity to drilling operations and air pollution and observed health impacts, and summarizes the categories of studies submitted to the County in comments on the SREIR (August 2020).

Please see Response to Comment 0009-62 and the Health Studies Chart attached to Response to Comments set 0009. The epidemiological studies, compilations, and reports submitted to the County in comments on the SREIR (August 2020) are summarized in the SREIR (October 2020)'s Air Quality, Hydrology and Water Quality, and Noise sections to inform the public and decisionmakers of the potential health effects from oil and gas operations. The SREIR (October 2020) disclosed the main findings of each study and discussed any limitations or gaps in a given study that might affect its weight in the decision-making process for the Project. The Health Studies Chart includes an expanded discussion of the findings (the methods, findings, and conclusions of each), as well as responses tailored to each study and report. None of the health studies or reports present information that calls into question the adequacy of the SREIR's analyses of health impacts from oil and gas development activities, nor the health risk-based setback distances discussed above. See Response to Comment 0009-62. None of the studies demonstrate that new mitigation measures beyond those already incorporated into the SREIR (October 2020) would substantially reduce impacts of the Project, or that Alternative 7, 2,500-foot Setback Alternative, would result in fewer environmental impacts than would the Project.

0061-61

The comment states that the SREIR (October 2020) insufficiently considered the health studies submitted in comments on the (August 2020) and failed to provide a meaningful discussion of how the studies relate to Alternative 7, 2,500-Foot Setback Alternative.

Please see Response to Comment 0061-58 and the Health Studies Chart attached to Response to Comments set 0009. The SREIR (October 2020) summarizes and discloses the findings of health studies published since the certification of the 2015 FEIR in Sections 4.3, Air Quality; 4.9, Hydrology; and 4.12, Noise. In addition to these summaries, the chart contained in the Health Studies Chart contains an expanded discussion of the health studies, including their methods, findings, and conclusions, as well as responses that are tailored to each study. The Health Studies Chart demonstrates, for each study, that the findings and associations observed do not implicate the Revised HRA assessment of exposures from oil and gas activities permitted under the Project, or the risk-based setback distances established under MM 4.3-5. The comment's recommendation that the SREIR (October 2020) should have researched whether countervailing scientific literature exists that would cast doubt on the scientific reports summarized in the SREIR (October 2020) is misplaced, given that none of the health studies presents information that calls into question the sufficiency of the 2015 FEIR's and SREIR's analyses of health impacts or setback distances supported by the HRAs.

0061-62

The comment states that the SREIR (October 2020) dismisses the health studies submitted in comments on the SREIR (August 2020) by asserting that health risk from oil and gas operations is not new information and that such risks were already accounted for in the analyses and mitigation measures under the 2015 FEIR. The comment further states that post-2015 health studies expand the nature and severity of the health effects relevant to establishing setback distances and mitigation measures and thus constitute "new information" under CEQA. Cal. Pub. Res. Code § 21166.

Please see Response to Comment 006-58, GR-6 – Health Risk Assessments, and the Health Studies Chart attached to Response to Comments set 0009. Despite the comment's claim to the contrary, the SREIR (October 2020) does not imply that the health studies and reports submitted to the County should be ignored, "written off," or have no informational value. The SREIR (October 2020) was revised, in part, to summarize and disclose the findings of the many health studies in Sections 4.3, Air Quality; 4.9, Hydrology; and 4.12, Noise. The SREIR (October 2020) explained the findings, as well as their limitations, deficiencies and geographic differences (if any), of each study to provide the public and decisionmakers with an updated

account of studies that have been published subsequent to the 2015 FEIR that investigated health effects that may be associated with oil and gas development. A more in-depth analysis of the health studies and their objectives, findings, and conclusions is included in the Health Studies Chart.

The comment is correct that, under CEQA, when an EIR has been prepared for a project, no subsequent or supplemental EIR shall be required by the lead agency or by any responsible agency, if “[n]ew information, which was not known and could not have been known at the time the environmental impact report was certified as complete, becomes available.” Cal. Pub. Res. Code § 21166(c). Under CEQA Guidelines section 15162(a)(3), a supplemental EIR may be required only if the new information shows any of the following:

- The project will have significant effects not evaluated in the prior EIR;
- Significant effects previously examined will be substantially more severe than shown in the prior EIR;
- Mitigation measures or alternatives found infeasible are in fact feasible and would substantially reduce significant effects of the project but the project proponents decline to adopt them; or
- Mitigation measures or alternatives considerably different from those analyzed in the EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt them.

The comment claims that the health studies discussed above expand the nature and severity of the health effects relevant to the 2015 FEIR’s and SREIR’s establishment of setback distances and mitigation measures. None of the health studies demonstrate that Alternative 7, 2,500-Foot Setback Alternative, would substantially reduce any of the Project’s significant adverse environmental effects. CEQA Guidelines § 15162(a)(3)(C). Therefore, none of the studies constitute “new information” sufficient to trigger further supplementation of the 2015 FEIR or the SREIR (October 2020).

0061-63

The comment states that the SREIR (October 2020) dismisses health studies submitted on the SREIR (August 2020) entirely by only referencing limitations in the study, which does not qualify as analysis or consideration of the studies. Please see Responses to Comments 0061-60, and the Health Studies Chart attached to Response to Comments set 0009.

As noted in Response 0061-60, the epidemiological studies, compilations, and reports submitted in comments on the SREIR (August 2020) are summarized in the SREIR (October 2020)’s Air Quality, Hydrology and Water Quality, and Noise sections to inform the public and decisionmakers of the potential health effects from oil and gas operations. Contrary to the comment’s characterization, these new excerpts in the SREIR (October 2020) did not only recognize the limitations of the studies and reports. See, e.g., SREIR (October 2020), Vol. 1, at 4.3-29, noting that Tran et al. (2020) conducted a retrospective cohort study of births between 2006 and 2015 to mothers living within 10 kilometers of at least one production well in the Sacramento Valley, San Joaquin Valley, South Central Coast, and South Coast Air Basins, and observed that prenatal exposure to active oil and gas production was associated with adverse birth outcomes; 4.3-29, noting that Gonzalez et al. (2020) observed evidence that exposure to oil and gas well sites in the first and second trimesters is associated with increased odds of spontaneous preterm birth at 20 to 31 weeks; 4.3-31, noting that Lim et al. (2020) observed that shale gas activities in Denton, Texas, has a strong influence on measured total non-methane organic carbon concentrations; and 4.3-31, noting that Haley et al. (2016) observed that setbacks in Texas, Pennsylvania, and Colorado may leave the public vulnerable to accidents and related hazards. Contrary to the comment’s characterization, the SREIR (October 2020) did not “dismiss” or “ignore” the health studies submitted, but made a good-faith effort to fully disclose each health study in an accurate, objective manner. CEQA Guidelines § 15151. In addition to the SREIR (October 2020)’s analysis of the health studies submitted to the County, the Health Studies Chart includes an expanded discussion of the findings and conclusions of each health study and report.

The comment critiques the September 14, 2020 technical memorandum prepared by Dr. David H. Garabrant (discussed in the SREIR [October 2020], Vol. 1, at 4.3-30 and referred to herein as “Garabrant September 2020 Memo”), which addresses a number of deficiencies and limitations of two studies submitted to the County: Gonzalez et al. (2020) and Tran et al. (2020) (Garabrant 2020a). Please see Dr. Garabrant’s December 30, 2020 technical memorandum prepared in response to this comment, referred to herein as “Garabrant December 2020 Memo” (Garabrant 2020b), attached to this Response to Comments set.

0061-64

The comment states that the SREIR (October 2020)’s summaries for a number of health studies include one or two sentences that acknowledge the researchers’ descriptions of the well-defined and limited task the researchers set out to accomplish.

The comment claims that the SREIR (October 2020) dismisses a number of the studies due to the fact that they did not prove causation or did not conduct an actual exposure assessment. Lastly, the comment states that a large number of the studies are epidemiological assessments, whose goal is to determine whether a particular health impact is statistically associated, or correlated, with proximity to upstream oil and gas development activities, and that identifying exact mechanisms and pathways might be suitable for other studies designed for that effect.

Please see Response to Comment 0061-65 and the Health Studies Chart attached to Response to Comments set 0009. The SREIR (October 2020) analyzed and summarized a number of health studies submitted in comments on the SREIR (August 2020) to apprise the public and decisionmakers of the body of science that has investigated health effects associated with oil and gas activities. An expanded discussion of the studies in the Health Studies Chart demonstrates that none of the studies or reports present information that calls into question the sufficiency of the 2015 FEIR's and SREIR's analyses of health impacts from oil and gas development activities, nor the health-risk based setback distances supported by the HRAs. The 2015 FEIR and the SREIR (October 2020) disclosed in numerous places known health effects from exposure to specific criteria pollutants and TACs. In addition to recognizing the studies and health effects in a qualitative manner, the SREIR (October 2020) relies on the Revised HRA as a precise, well-accepted methodology for quantifying cancer and acute/chronic noncancer risks associated with Project activities. See SREIR (October 2020), Vol. 2, Appendix B. The SREIR (October 2020) does not dispute the comment's assertion that epidemiological studies investigating health effects are informative, but rather, that the actual exposure assessments conducted under the HRAs also constitutes an acceptable methodology to assess health risks that are specifically-tailored to Project activities.

This complementary approach taken in the SREIR (October 2020) fully apprises the public and decisionmakers of health risks associated with oil and gas activities permitted under the Project. The SREIR (October 2020)'s reliance on the HRAs and risk-based setback mitigation measures is not only permissible under CEQA, but consistent with well-accepted scientific principles that recognize the benefits of exposure assessments in public health decision-making processes. See, e.g., *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 514 (“a decision to use a particular methodology and reject another is amenable to substantial evidence review”); see also *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 393, 409 (“[t]he issue is not whether the studies are irrefutable or whether they could have been better. The relevant issue is only whether the studies are sufficiently credible to be considered as part of the total evidence that supports the findings”).

0061-65

The comment states that, in most health regulatory contexts, studies showing increased health, safety, or environmental risks are sufficient to preclude approval of activities, even if the physiological cause or mechanism driving the risk is not scientifically proven.

Please see Response to Comment 0061-64 and the Health Studies Chart attached to Response to Comments set 0009. For comments within the Srebotnjak Memorandum, please see Responses to Comments 0061-185 through 0061-205. The SREIR (October 2020)'s reliance on the HRAs to establish risk-based setback mitigation measures—in addition to qualitatively disclosing health effects associated with oil and gas impacts and studies investigating the same—is permissible under CEQA and consistent with well-accepted scientific principles.

0061-66

The comment states that the SREIR (October 2020) observed that many of the health studies did not conduct exposure assessments or show causal relationships between the health effects investigated and proximity to unconventional oil and gas activities, and that this is of “no particular import” and not a basis to “dismiss a study from consideration.” The comment further states that researchers' acknowledgments of these limitations are descriptions of what the research was designed to address.

Please see Responses to Comments 0061-63 and 0061-68, and the Health Studies Chart attached to Response to Comments set 0009. Contrary to the comment's characterization, the SREIR (October 2020)'s observation that certain health studies submitted to the County did not measure actual exposure of pollutants or hazardous substances and/or were unable to prove causation of oil and gas activities to various health effects does not mean that the SREIR (October 2020) dismissed such studies from consideration. The SREIR (October 2020) included summaries of the various health studies (including their findings and limitations). The Health Studies Chart includes an expanded discussion of the methods, findings, and conclusions of these studies and notes that each will be considered by the County decisionmakers.

As noted in the Garabrant December 2020 Memo, well-established principles of scientific research dictate that causality and causal inferences is a basis for public health decisions:

As Merrill states in his textbook *Environmental Epidemiology, Principles and Methods* (Merrill, 2008)(at pages 32-34) ‘Measuring the intensity and duration of exposure is often necessary for supporting causal association.’ ‘Identifying an association between dose and an adverse health outcome provides support for causality. The quality of the exposure measurements influences the validity of the study.’ ‘Data most appropriate for assessing risk factors are those obtained from personal monitoring and use of biologic markers.’ (Garabrant 2020b, p.2)

While observational association studies are widely used in epidemiology and can contribute to public health decision making, this point is relevant only when the studies provide reliable evidence. Assessing causation requires the identification of reliable associations between exposures and health outcomes (Hill, 1965). Causal inferences provide a basis for public health actions (Weed, 1995). (Garabrant 2020b, p. 3.)

Dr. Garabrant also explains that noting that particular studies were not designed to measure exposure or establish causality does not mean that such studies cannot be critiqued on that front. See the Garabrant December 2020 Memo, which states: “[i]f this premise were true, it would mean that any scientific study that was deficient in any way could not be criticized for its deficiency as long as it was designed to be deficient. As far as I am aware, this concept is not endorsed by the scientific community” (Garabrant 2020b, p.3). The SREIR (October 2020) does not dismiss or belittle any scientific study for failing to measure exposure or establish casualty between oil and gas operations and particular health effects. However, it was completely reasonable for the SREIR (October 2020) to note that the studies failed to measure exposure or establish casualty in its summaries of the studies.

0061-67

The comment claims that the SREIR (October 2020) mistakes researchers’ descriptions of their studies for the identification as problems, citing four examples. This comment also claims that the mere fact that some researchers recommended exposure assessment studies as follow-up to their work did not inhibit them from observing associations between preterm birth rates and proximity to oil and gas development.

Please see Responses to Comments 0061-58 and 0061-66 and Health Studies Chart attached to Response to Comments set 0009. The summaries of health studies and reports in the SREIR (October 2020) do not claim that the methods, data limitation, or calls for further study were “problems” that warrant a dismissal of such studies. Rather, the SREIR (October 2020)’s summaries included additional points for each study beyond the representation of the studies in comments on the SREIR (August 2020) in a good-faith effort to disclose the health studies in an accurate and objective manner. The chart provided in the Health Studies Chart contains an expanded discussion of the health studies and reports, including responses that are tailored to each study.

0061-68

The comment states that the Garabrant September 2020 Memo erroneously critiques Gonzalez et al. (2020) and Tran et al. (2020) for lack of conducting exposure assessments, and that these studies do not fall into that category of research. The comment also states that neither Gonzalez et al. (2020) nor Tran et al. (2020) were designed to explain the association results observed.

Please see Responses to Comments 0061-193 and 0061-194 and the Garabrant December 2020 Memo attached to this Response to Comments set. The Garabrant December 2020 Memo explains that deficiencies in the design of Tran et al. (2020) and Gonzalez et al. (2020) are the principal reasons that these studies do not provide reliable evidence of causal associations between oil and gas development and adverse birth outcomes. “The studies were not designed in a way that emissions of any particular chemical or physical agent from oil and gas development could be reliably evaluated with respect to the occurrence of abnormal birth outcomes” (Garabrant 2020b, p.1).

Dr. Garabrant explains that neither the Tran et al. (2020) nor the Gonzalez et al. (2020) studies measure actual exposures and thus provide little, if any, evidence to support an interpretation that oil and gas activities is causally associated with adverse birth outcomes. As Dr. Garabrant states: “The Tran and Gonzalez studies do not provide evidence that satisfies any of the nine considerations and it is reasonable to conclude that they not only ‘do not prove causation’; they also provide almost no support whatsoever for causation” (Garabrant 2020b, p. 2).

While Dr. Garabrant agrees that “observational association studies are widely used in epidemiology and can contribute to public health decision making,” this point is relevant only when the studies provide reliable evidence (Garabrant 2020b, p.3). Dr. Garabrant explains that the crux of the issue is that the “Tran and Gonzalez studies are not of high enough quality to provide a reliable basis for deciding that oil and gas development exposures cause abnormal birth outcomes, not whether observational studies are used in epidemiology” (Garabrant 2020b, p.3). Recognizing that Tran et al. (2020) and Gonzalez et al. (2020) were not designed to measure exposures is an insufficient basis to argue such studies should not be critiqued for their deficiencies (Garabrant 2020b, pp. 3–4).

As to the comment’s point that neither the Tran et al. (2020) nor Gonzalez et al. (2020) studies were designed to explain association results, that point is contradicted by points raised in those studies. Gonzalez et al. (2020) explain how their study hypothesis is supported by an association in stating that it “found evidence that proximity to wells in preproduction is associated with higher exposure to PM₁₀ and PM_{2.5}, which supports our hypothesis that proximity to wells in preproduction confers risk” (Garabrant 2020b, p.3). Tran et al. (2020) explains that “[u]nlike previous studies, we found no significant association between exposure to active wells and PTB [preterm birth] except in the third trimester in urban areas where moderate exposure appeared harmful and high exposure protective” (Garabrant 2020b, p. 4). Dr. Garabrant asserts that both studies sought to explain what their associations meant, despite this comment’s claim to the contrary (Garabrant 2020b, p. 4).

0061-69

The comment states that the SREIR (October 2020) dismisses a number of health studies submitted to the County on the SREIR (August 2020) because they were performed outside of California. The comment also states that more recently performed California studies have replicated the results of out-of-California studies concerning proximity to oil and gas operations and health impacts.

Please see Response to Comment 0061-34. Multiple sources have confirmed not only that oil and natural gas activities in other states (e.g., Texas, Colorado, Pennsylvania) differ from those in California, but also that the environmental regulatory regimes in other states may not be as protective of human health and the environment with respect to oil and gas operations. See Response to Comment 0061-34. These sources include the following:

- CCST 2015, *An Independent Scientific Assessment of Well Stimulation in California Summary Report* (2015 CCST Report) – found that “California wells tend to be shallow and the reservoirs more permeable” than those in other states, and “California operators generally do not conduct high-volume hydraulic fracturing from long-reach horizontal wells, and for this reason use far less water” (CCST 2015a, p. 1). The 2015 CCST Report also found that California hydraulic fracturing operations consume significantly less water than operations in other states. Based on these differences between hydraulic fracturing in California and other states, the 2015 CCST Report concludes that “[p]resent-day hydraulic fracturing practice and geologic conditions in California differ from those in other states, and as such, recent experiences with hydraulic fracturing in other states do not necessarily apply to current hydraulic fracturing in California”(CCST 2015a, p. 16).
- SB 4 EIR – the SB 4 EIR certified by DOGGR (now CalGEM) in 2015 noted several differences between hydraulic fracturing operations in California and in other states, including that “[f]racture lengths are typically much shorter in California due to the layered geological environment and other physical parameters, such as an area’s history of seismic activity and resulting movement of geologic features, shallower depths of well stimulation treatments than in other states, and lower volumes of fracturing fluids injected.” SB 4 EIR, at p. 7 – 9. SB 4 EIR also recognized that “California has the most rigorous regulations in the country for oil and gas exploration, development and production,” and the implementation of these regulations “has greatly minimized, and in many cases prevented, the types of environmental impacts that have occurred in other states.” SB 4 EIR, at C.10-24.
- Tran et al. (2020) – acknowledged that hydraulic fracturing practices in California differ from those in other states, “potentially resulting in differing environmental hazards.” Specifically, the study found that due to the long history of oil and gas development in California, “stimulation techniques, such as water and steam injection and HF [hydraulic fracturing], are primarily used at established sites rather than newly drilled wells.” The study also found that hydraulic fracturing is used less frequently in California than in other states, and accounted for only 20 percent of California’s oil production over the last decade: “California’s OGD infrastructure is older than infrastructure in other states and utilizes less HF in comparison with OGD in Pennsylvania, Colorado, and other states where production infrastructure is newly established....These regional differences in OGD infrastructure may affect the type of hazards associated with them and their implications for maternal health and birth outcomes.” These findings are

based on the 2015 CCST Report and are consistent with recent CalGEM data, which show a general decline in issuance of WST permits and WST activity in California over the last few years.

- City of Los Angeles, Department of Public Works, Office of Petroleum and Natural Gas Administration and Safety, Oil and Gas Health Report (2019) – identified significant differences between oil and gas production in California and other states, and cautioned against the application of non-California health studies to California oil and gas operations. The report noted that while “[t]he majority of the studies cited in research literature were from unconventional natural gas fields that have tight shale rock geologic formations enabled by high-volume hydraulic fracturing operations outside of California,” conventional oil and gas production in the City “is completely different from the field specific geochemistries, high pressure and high flow rate oil and natural gas production in other states like Colorado, New Mexico, Oklahoma and Texas” (City of Los Angeles 2019, p. 142). This is because “[p]roduction in those states are typically completed with unconventional natural gas development techniques, such as hydraulic or acid matrix fracturing that utilize large gas compressor stations. Oil and gas production in those states can often flow freely on primary production at much greater depths to the surface than in the mature oil fields within the City” (City of Los Angeles 2019, p. 142). The report also noted that California state and local regulatory requirements relating to oil and gas operations provide heightened regulatory protections compared to those in other states such as Colorado, Texas, Ohio, Pennsylvania, or Maryland (City of Los Angeles 2019, p.143).

The comment’s claim that the SREIR (October 2020) dismissed studies performed outside of California is incorrect and misplaced. The SREIR (October 2020) summarized and disclosed non-California studies in the SREIR (October 2020)’s Air Quality, Hydrology and Water Quality, and Noise sections; this discussion is expanded in the Health Studies Chart attached to Response to Comments set 0009. While the SREIR (October 2020) did not “dismiss” any of these studies, for reasons discussed above, it is important to note which studies analyzed health impacts from oil and gas development activities in states that do not share the geological characteristics, industry practices, and environmental regulatory regimes found in California. Due to the inherent differences between California hydraulic fracturing practices, geologic conditions, and regulatory requirements from other states, the non-California studies cited in the comments may have found associations between health effects and proximity to oil and gas activities that are not present (or not as extreme) as observed in other states.

The comment states that the 2015 CCST Report concluded in general terms that “the same health impacts that have been found near oil development enabled by hydraulic fracturing may exist in any oil and gas development” (CCST 2015b, Vol. 2, p. 374). While the 2015 CCST Report quotation is accurate, the authors of that report also noted:

Most of the studies included in this review of the literature were conducted in geographically and geologically diverse areas of the U.S., and may or may not be directly generalizable to the California context. Furthermore, much of the research on health risks has been conducted on the development of hydrocarbons from shale. While there are many similarities between the processes involved in the development of shale across the country and in the development of diatomite and other oil reservoirs in California, there are also a number of differences that increase *and decrease* public health hazards and potential public health risks. (CCST 2015b, Vol. 2, p. 434)

The 2015 CCST Report did not definitively conclude that health effects observed in studies performed outside of California apply to California oil and gas practices.

0061-70

The comment states that the Shonkoff and Hill (2019) report, which specifically concerns the Los Angeles region, addresses in greater depth the question of out-of-state applicability of non-California data by concluding that “there are enough similarities between the types of operations studied outside of California to operations located in the Los Angeles Basin that this body of literature should be carefully considered by regulators and policy decisionmakers.”

Please see Response to Comment 0061-69. The comment is correct that Shonkoff and Hill (2019) made the quoted statement. It is not abundantly clear what “similarities” the authors of Shonkoff and Hill (2019) were referring to, and whether those similarities are applicable to Kern County as they are for the Los Angeles Basin. The Shonkoff and Hill (2019) report (dated May 9, 2019) was prepared for the City of Los Angeles, Department of Public Works, Office of Petroleum and Natural Gas Administration and Safety (OPNGAS). The report notes that the Los Angeles City Council directed OPNGAS to work with the Los Angeles County of Department Health to assess health effects of oil and gas production in the City of Los Angeles. Subsequent to Shonkoff and Hill (2019), an OPNGAS report prepared for the Los Angeles City Council (dated July 25, 2019)

for which Shonkoff and Hill (2019) was procured reached slightly different conclusions on the applicability of out-of-state studies:

The limited body of scientific research suggests association with a variety of potential health hazards and impacts related to the density of wells, proximity to sensitive receptors, and emissions of high concentrations of toxic air contaminants. The City of Los Angeles, Southern California Region, and the State of California have a dearth of local health studies to validate the findings in other states. The majority of the studies cited in research literature were from unconventional natural gas fields that have tight shale rock geologic formations enabled by high-volume hydraulic fracturing operations outside of California. However, the conventional oil and gas production in the City of Los Angeles is completely different from the field specific geochemistries, high pressure and high flow rate oil and natural gas production in other states like Colorado, New Mexico, Oklahoma and Texas. Production in those states are typically completed with unconventional natural gas development techniques, such as hydraulic or acid matrix fracturing that utilize large gas compressor stations. Oil and gas production in those states can often flow freely on primary production at much greater depths to the surface than in the mature oil fields within the City. Those states do not have the same level of emission control as required by CARB [California Air Resources Board] or SCAQMD [South Coast Air Quality Management District] in Southern California. It should be noted that since the 2013 enactment of State Senate Bill 4, there has been no permitted unconventional hydraulic fracturing oil and gas wells activity within the City of Los Angeles. (City of Los Angeles 2019, p. 142)

Although Shonkoff and Hill (2019) recommended that out-of-state studies should be considered (a position the SREIR [October 2020] does not dispute given its inclusion of many summaries of out-of-state studies), the local agency department for which that report was prepared noted the potential inapplicability of out-of-state studies.

0061-71

The comment states that the 2015 CCST Report and Shonkoff and Hill (2019) study found an additional risk factor in California as compared to other states—namely, that the population density around oil and gas wells is much higher in some parts of California, which may mean that the “intake fraction” (i.e., the ratio of the mass of a pollutant inhaled to the mass of the pollutant emitted) is higher.

As this comment accurately notes, Shonkoff and Hill (2019) explain the concept of “intake fraction,” but do so in the context of the Los Angeles Basin. Table 3 of the study reports the number of residents and other sensitive receptors located within various distances from active oil and gas wells, ranging from 328 to 6,562 feet. The study notes that “[o]il and gas development accounted for a smaller proportion of total emissions in the Los Angeles Basin...; however, larger and denser populations live, work, play and learn within close proximity of oil and gas development in this region, increasing the *intake fraction* of emissions that do occur” (Shonkoff and Hill 2019, pp. 11–12; emphasis original). The study does not compare “intake fractions” of oil and gas regions within California to those outside of California, nor did Shonkoff and Hill (2019) analyze or comment on population density with respect to oil and gas activity in the County. Rather, they analyzed the density of the Los Angeles Basin, one of the most densely populated areas of the United States. The comment has not presented any evidence to apply the intake fraction concept used by Shonkoff and Hill (2019) in the context of Kern County—a less dense region than the Los Angeles Basin—and emissions from Project activities.

0061-72

The comment states that: (1) the SREIR (October 2020)’s only substantive argument as to why non-California studies are not applicable is that shorter and near-vertical wells in California take less time to drill and therefore emit less air pollution; and (2) the SREIR (October 2020) cites no authority for the general proposition that California wells tend to be shorter and closer to vertical.

These claims are inaccurate. Please see Responses to Comments 0061-69 and 0061-85. Addressing point (2) first, the SREIR (October 2020)’s statements that California wells tend to be shallower and near-vertical comes directly from the 2015 CCST Report, which notes that “[g]enerally, current hydraulic fracturing in California tends to be performed in shallower wells that are vertical as opposed to horizontal; and requires much less water per well....” (CCST 2015b, Vol. 1, p. iv). The 2015 CCST Report notes elsewhere that “[a]ccording to DOGGR [now CalGEM] well data and SB 4 stimulation notices, most of the hydraulically fractured wells in California are vertical or near vertical, and on average shallower than in other states. Consequently, California wells are not as long and thus have shorter treatment intervals than the long-reach horizontal wells commonly hydraulically fractured in basins in other states” (CCST 2015b, Vol. 1, p. 11). The SB 4 EIR notes that “[f]racture lengths are typically much shorter in California due to the layered geological environment and other physical parameters, such as ... shallower depths of well stimulation treatments than in other states.” SB 4 EIR, at 7–9. Therefore, the comment’s

assertion that the SREIR provides no evidence that wells in California tend to be shorter and closer to vertical as compared to other states is incorrect. Please see Response to Comment 0061-85 for an explanation of how longer drilling periods associated with horizontal drilling (and deeper vertical wells) may result in greater emissions of criteria pollutants.

Concerning argument (1) above, in addition to the geological differences between California and other states, multiple sources confirm that industry practices and the regulatory regimes in California differ from those of other states. California uses hydraulic fracturing techniques to a lesser extent than other states, and to the extent that hydraulic fracturing techniques are used, they result in lower volumes of fracturing fluids. See Tran et al. (2020), p. 067001-10, who note that California utilizes less hydraulic fracturing in comparison with oil and gas development activities in Pennsylvania, Colorado, and other states “where production infrastructure is newly established” and that “[t]hese regional differences ... may affect the type of hazards associated with them and their implications for maternal health and birth outcomes”; and SB 4 EIR, noting that California uses lower volumes of injected fracturing fluid. The sources referenced in Response 0061-69 explain that California’s regulatory regimes for oil and gas activities may be more protective of human health and the environment than those of other states. See, e.g., SB 4 EIR, which states that “California has the most rigorous regulations in the country for oil and gas exploration, development and production...”; see also City of Los Angeles (2019) p. 143, which states that California state and local regulatory requirements relating to oil and gas operations provide heightened regulatory protections compared to those in other states such as Colorado, Texas, Ohio, Pennsylvania, or Maryland. Therefore, due to inherent differences in geological conditions, hydraulic fracturing practices, and regulatory regimes that are unique to California, health studies conducted outside of California in states that use more intensive hydraulic fracturing practices and more injection fluids—and do so with less stringent regulatory standards for oil and gas operations—may not be reflective of oil and gas activities permitted under the Project and the corresponding health impacts.

The comment claims that Appendix U of the 2015 FEIR (Kern County Drilling and Hydraulic Fracturing Comparison Memo) indicates highly variable well depths for both conventional drilling and Monterey Shale Source Rocks in Kern County, with maximum depths (13,869 and 14,000 feet, respectively) that are comparable to or exceed the drilling depths identified for all other states and plays identified in the report. The comment is correct that Table 1 of Appendix U provides the minimum and maximum range of depths to play (in feet) of various shale plays in addition to the Monterey Shale Source Rocks in Kern County (e.g., Barnett Shale (Texas), Marcellus Shale (New York, Pennsylvania, and West Virginia), Niobrara Shale (Colorado, Wyoming, and Nebraska)). Table 1, however, does only that—it provides minimum and maximum well depths and does not demonstrate that the average well depths in the County are comparable to, or exceed, those in other shale plays outside of California. The 2015 CCST Report provides quantitative data to support the SREIR (October 2020)’s statement that oil and gas wells in California tend to be shallower than those in other parts of the Country (CCST 2015a).

Please see also Global Response 18 – Monterey Shale Recovery in Project Area - in the 2015 FEIR, which concluded that “unlocking the full potential of the Monterey shale is unlikely in the reasonably foreseeable future, even with improved recovery technology and better understanding of the formation.

0061-73

The comment states that Kern County contains a significant number of non-vertical wells and that, in recent years, the proportion of directional and horizontal drilling has increased considerably.

The comment’s statements regarding numbers of horizontal and directional wells in Kern County are correct. However, the comment’s statements do not support the objection in Comment 0061-72 to the SREIR’s discussion of studies in other areas of the United States, because directional drilling includes drilling at a range of angles, including angles close to vertical, and drilling practices differ between those areas and Kern County. Please see Responses to Comments 0061-72, 0008-13, 0008-33 through 0008-35, 0059-23, 0059-39, and SREIR (October 2020), Vol. 2, Appendix G, at Velasco 2020.

0061-74

The comment states that it is unlikely that all wells studied in other states are deeper than those in Kern County and asserts that the SREIR must assess whether deeper or more horizontal wells were the subject of out-of-state studies. The comment states that the SREIR indicates that well depths vary in different areas in Kern County, and wells in the Central Subarea average 10,414 feet.

The comment’s statements do not support the objection in Comment 0061-72 to the SREIR’s discussion of studies in other areas of the United States, which is reasonable based on the predominant geological conditions and drilling practices in Kern County and elsewhere. The comment does not provide information indicating that any of the studies involved geological conditions and drilling practices in other states that are comparable to those in Kern County.

0061-75

The comment states that the SREIR (October 2020) fails to evaluate why drilling in California based on its geology would not result in greater drilling emissions than in other states. The comment also conjectures that, if it is true that operators in California drill fewer horizontal wells than other states, the relatively low proportion of horizontal wells would require operators to drill more wells or more densely packed wells to access the same area of hydrocarbons. The scenario offered in the comment (i.e., that the lack of horizontal drilling in California would result in more and more densely packed wells) is dependent on the unsupported assumption that hydrocarbon plays are distributed laterally. In fact, oil and gas reservoirs in the County tend to be isolated and in small pockets that are discontinuous laterally and vertically stacked. See Response to Comment 0012-2, noting that producible reservoirs in the County are situated in isolated small pockets that are discontinuous laterally; see also Response to Comment 0059-39.

0061-76

The comment states that oil and gas drilling in California is under-regulated compared to other states, referring to Appendix U from the 2015 FEIR, which compared oil and gas regulations then in effect in California to those of other states, and asserts that the SREIR's discussion of out-of-state studies fails to take this difference into account.

The comment does not state a specific concern regarding differences in regulations between California and other states related to the adequacy of the SREIR and therefore does not require a detailed response. Appendix U, which was provided in the 2015 FEIR for informational purposes and was not required by CEQA, does not represent current regulatory requirements in California or in other states. It is reasonable to assume that impacts occurring under the different regulatory requirements in other states would render studies from those states less, not more, relevant to impacts of drilling practices in California.

0061-77

The comment notes that the depth of wells varies throughout the Project Area and states that the emissions analysis must account for emissions for fields that require deeper or directional drilling.

The analysis in the SREIR incorporated conservative assumptions that took into account emissions from various well depths and resulting drilling durations throughout the County. The OG-ERA mitigation fees paid by applicants under MM 4.3-8 are determined by drilling depth and increase for wells at greater depths. The multiple HRAs prepared for the Project evaluated emissions from drilling wells to depths of 2,000 feet, 5,000 feet, 10,000 feet, and 15,000 feet. See SREIR (October 2020) at 4.3-133–134, 4.3-145. Please see GR-6 – Health Risk Assessments, and Responses to Comments 0014-2 through 0014-8, 0014-11 through 0014-14, 0008-27, 0008-58 through 0008-62, 0009-55 through 0009-89, and 0009-153 through 000 9-159 for a full discussion of the various HRAs completed for the Project.

0061-78

This comment takes issue with the notion that out-of-state studies may not be applicable to California-based oil and gas activities due to California's unique geology, citing Shonkoff and Hill's (2019) observation that emissions of concern occur during other phases of production activities and are not limited to well drilling activities.

Please see GR-6 – Health Risk Assessments and the Health Studies Chart attached to Response to Comments set 0009. As noted in GR-6, the Revised HRA did not limit its risk assessment to well drilling activities. It also assessed cancer and acute and chronic noncancer risks associated with emissions from oil and natural gas operational equipment in addition to drilling equipment. Operational equipment emissions in the oil processing scenario were assumed from two 1,000-barrel (Bbl) above-ground tanks, one 3,000 Bbl above-ground tank, one 10 million British thermal units per hour (MMBtu/hour) flare, a truck loading rack, fugitive emissions from valves, flanges, one 30- by 30-foot sump, and thermally enhanced oil recovery (TEOR) equipment. Operational equipment emissions in the natural gas scenario were assumed from one 100 MMBtu/hour flare, one 8 MMBtu/hour process heater, one 10 MMBtu/hour boiler, one 85 MMBtu/hour steam generator, and one 33-megawatt cogeneration plant. The Revised HRA quantified and assessed hazardous air pollutant (HAP) exposure for both drilling and processing equipment. None of the acute and chronic noncancer hazards for either an oil processing facility or a gas processing facility exceed the regulatory threshold of 1.0. See SREIR (October 2020), Vol. 2, Appendix B, at 13. GR-6 also explains that benzene—which Shonkoff and Hill (2019) noted in particular as capable of being emitted during both well stimulation and production activities—was accounted for in the HRAs. See SREIR (October 2020), Appendix B, Revised Health Risk Assessment, at 5, 19–31, noting that “[t]he primary risk driver from oil processing equipment is benzene”; and Table A, quantifying benzene emissions from various sources involved in oil and natural gas processing in lbs/year and lbs/hour increments).

0061-79

The comment states that peer reviewed studies indicate that HAPs are emitted over the entire course of upstream oil and gas development, with numerous pollutants (e.g., benzene, ethylbenzene, n-hexane, hydrogen sulfide, naphthalene, polycyclic organic matter, toluene, and xylenes) detected during multiple stages of drilling. See Gonzales et al. (2019). The comment notes that another study—Garcia-Gonzales et al. (2019)—found that the production phase of oil and natural gas activities has the potential to emit the highest concentrations of HAPs over the longest time periods. Lastly, the comment notes that drilling activities tend to last for a matter of days, whereas production activities can continue “for decades.”

Please see GR-6 – Health Risk Assessments and the Health Studies Chart attached to Response to Comments set 0009. As noted in GR-6, the Revised HRA assessed cancer and acute and chronic noncancer risks of 31 HAPs associated with oil and natural gas production equipment, including, but not limited to, benzene, ethylbenzene, n-hexane, hydrogen sulfide, naphthalene, toluene, xylenes, and polycyclic aromatic hydrocarbon compounds. See SREIR (October 2020), Vol. 2, Appendix B. The Revised HRA quantified and assessed HAP exposure for both drilling and production activities. None of the noncancer hazards for either an oil processing facility or a gas processing facility exceed the regulatory threshold of 1.0. See SREIR (October 2020), Vol. 2, Appendix B, at 13. Therefore, the Revised HRA sufficiently analyzed and quantified risks associated with the production phase of oil and gas activities permitted under the Project, and specifically did so for the chemicals observed in Garcia-Gonzales et al. (2019).

0061-80

The comment claims that the SREIR (October 2020) cursorily dismissed health studies submitted to the County by recognizing the limitations and data gaps of certain studies, and that the Draft SREIR (October 2020) fails to explain how such limitations or data gaps discredits the results of the studies.

Please see Response to Comment 0061-63 and the Health Studies Chart attached to Response to Comments set 0009. The epidemiological studies, compilations and reports submitted to the County are summarized in the SREIR (October 2020)’s Air Quality, Hydrology and Water Quality, and Noise sections. Contrary to the comment’s characterization, the SREIR (October 2020) does not “dismiss” or “ignore” health studies submitted, but makes a good-faith effort to fully disclose each health study in an accurate and objective manner. In addition to the SREIR (October 2020)’s analysis of the health studies submitted to the County, the Health Studies Chart includes an expanded discussion of the findings and conclusions of each health study and report. To the extent the SREIR (October 2020) also summarizes the authors’ limitations, it does so to provide the public and decisionmakers with complete understanding of the study’s findings. As noted by the Los Angeles County Department of Public Health in its 2018 report titled *Public Health and Safety Risks of Oil and Gas Facilities in Los Angeles County* (LA County Report):

Determining a link between oil and gas production and health impacts based on reviews of the literature is challenging because of the inherent limitations of epidemiological studies. The analyses in these studies typically cannot confirm whether past exposures to chemicals from oil and gas activities are associated with health effects among nearby residents, because of the limitations associated with small sample sizes, and the inability to reliably detect small increases in risk. There is also typically a lack of information on individual levels of exposure to emissions to establish dose-response curves and temporal relationships.... Epidemiological studies are observational, and by themselves cannot determine causal relationships between exposures from oil and gas production and specific health effects; however, they provide useful information to guide future research. Studies with well-designed exposure monitoring and measurements are needed to elucidate the actual health implications for populations near oil and gas sites. (Los Angeles County Department of Public Health 2018, pp. 5–6)

The LA County Report therefore recognized that epidemiological studies are useful, but that analyses based on individual level of exposure to emissions are needed to “fill the gaps” left by the limitations of epidemiological studies. The SREIR (October 2020) followed that approach, by summarizing and disclosing health studies, noting their findings and limitations, and relying on HRAs tailored to Project activities as an accurate and well-accepted method of assessing health risks from the Project.

0061-81

The comment speculates that the data gaps identified in the referenced studies could bias the result toward not finding any risk association, or could suggest that actual risks may be worse than what the studied was able to assess with limited data.

This comment is noted and will be considered by County decisionmakers. Please see Responses to Comments 61-60, 61-63, 61-64, 61-67 and 61-69 regarding the health studies summarized in the SREIR (October 2020).

0061-82

The comment states that acknowledging data or methodological limitations is standard practice in epidemiological research studies, and that the National Institutes of Health has stated that researchers have an obligation to present complete and honest limitations of their studies.

This principle is not disputed by the County. The comment also states, however, that the SREIR (October 2020) characterized the limitations and data gaps of certain studies as a means of disregarding them entirely. Despite the comment's claim to the contrary, the SREIR (October 2020) does not imply that the studies and reports presented should be ignored or have no informational value due to their limitations. The SREIR (October 2020) identified the data gaps and other limitations noted by the researchers in order to provide a complete and objective assessment of the studies. Please see the Health Studies Chart attached to Response to Comments set 0009 for an expanded discussion of the health studies, including their findings, conclusions and the SREIR's responses to each.

0061-83

The comment states that the Garabrant September 2020 Memo makes no effort to describe the significance of the inability of Tran et al. (2020) and Gonzalez et al. (2020) to control for confounding factors.

Please see the Garabrant December 2020 Memo attached to this Response to Comments set. According to the Garabrant December 2020 Memo, the significance of the authors' inability to control for various factors that are potential confounders is that the studies' authors (Tran et al. (2020), Gonzalez et al. (2020) cannot state with confidence that results were reliable or not biased by the presence of confounding factors (Garabrant 2020b, p.5) The Garabrant December 2020 Memo explains that "[t]hese are deficiencies in [the authors'] study design and conduct that must be considered when we evaluate the reliability of their results and conclusions" (Garabrant 2020b, p. 5).

0061-84

The comment states that the Garabrant September 2020 Memo is wrong in its assertions regarding confounding factors that were not considered in Tran et al. (2020) and Gonzalez et al. (2020).

Please see Response to Comment 0061-199 and the Garabrant December 2020 Memo attached to this Response to Comments set. The SREIR does not "criticize," but rather notes, how the various health studies and reports acknowledged potential confounding variables. See Response to Comment 0061-199. Dr. Garabrant has clarified that, with regard to the Tran et al. (2020) study, his statements in the September 2020 memorandum were correct, with the exception of prenatal care (for which the Kotelchuck index was used for adjustments), and that his comments on smoking were correct insofar as smoking was not included in the models because it was missing for 360,065 births (Garabrant 2020b, p. 7). Dr. Garabrant stands by his previous critique of Gonzalez et al. (2020), which he explains was correct as written (Garabrant 2020b, p. 7). Dr. Garabrant further notes that this comment provides no evidence that comments and analysis of Gonzales et al. (2020) properly controlled for confounding by smoking, poverty, or lack of access to health care (Garabrant 2020b, p. 7). Dr. Garabrant further notes that the Srebotnjak Memorandum (attached as Addendum C to the comments) provides no evidence that Tran et. al (2020) properly controlled for confounding by smoking or poverty (Garabrant 2020b, p. 7).

0061-85

The comment claims that the SREIR provides no basis or data for asserting that the Alternative 7, 2,500-Foot Setback Alternative, may result in greater emissions of criteria pollutants and greenhouse gas emissions due to more horizontal drilling that may result from such a setback. The comment also claims that the SREIR incorrectly finds that air emissions are primarily correlated with wellbore distance.

Please see Response to Comment 0008-37. Although Response to Comment 0008-37 concerns the feasibility of well clustering mitigation, it explains that horizontal drilling requires a longer drilling path and duration to reach the target reservoir as compared to a vertical well. Longer drilling periods mean increased levels of construction-related emissions, while emissions from later phases of a well's productive life would be unchanged. Horizontal drilling not only requires longer drilling times, but also the use of larger, higher horsepower engines that may result in higher emissions than vertical drilling for an equivalent distance. The engines utilized in drilling operations come in discrete sizes, and transitioning to the next larger size of engine, in order to achieve a given increase in power, may result in a disproportionate increase in emissions.

In 2011, the U.S. Forest Service published a report on techniques that oil and gas operations might use to reduce or mitigate emissions from oil and gas development and production operations (U.S. Forest 211). Consistent with Response to Comment 0008-37 and the SREIR (October 2020)'s analysis of well clustering mitigation, the report notes that

[w]here directional drilling reduces emissions, reductions come from decreasing the number of pads and thus not constructing an equal number of separate roads. ... Directional drilling *may require more power and thus have a greater potential for emissions than vertically drilling to the same point of contact with the producing horizon*. ... Total air emissions might actually increase as a result of directional drilling due to the increase in true depth, i.e., greater distances drilled, greater drill times, and increased overall energy use. (U.S. Forest Service 2011, pp. 7–8) (emphasis added)

The comment presents no information or data that cast doubt on the SREIR (October 2020)'s analysis that Alternative 7 could result in increased horizontal drilling and therefore increased emissions of criteria pollutants and greenhouse gas impacts. Nor does the comment present evidence that calls into question the SREIR (October 2020)'s finding that Alternative 7 would not result in substantially reduced adverse environmental impacts as compared to the Project.

0061-86

The comment claims that the SREIR's determination that Alternative 7 may result in higher criteria pollutant and greenhouse gas emissions as compared to the Project is at odds with the SREIR's determination that Alternative 7 could expose the County to unreasonable takings liability.

The SREIR (October 2020) explains that Alternative 7's 2,500-foot setback could prevent some mineral rights holders from exercising those rights if geologic constraints prevent the use of horizontal drilling techniques to reach mineral resources from a location beyond the setback boundary. The SREIR (October 2020) also explains that, where there are no such geologic constraints, a 2,500-foot setback could require longer drilling times and thus may result in higher criteria pollutant and greenhouse gas emissions than would otherwise occur under Project conditions. These statements do not conflict with one another. In other words, to the extent that some mineral landowners would be precluded from reaching their mineral resources under Alternative 7, the County may face exposure to takings liability. To the extent that some mineral landowners are not precluded from reaching mineral resources under Alternative 7 through use of horizontal drilling, such horizontal drilling may entail greater criteria pollutant and greenhouse gas emissions.

0061-87

The comment states that field studies play a critical role in assessing health risks that complement the role of data modeling and that the 2015 FEIR and the SREIR HRAs can be informed by field study data.

Please see Response to Comment 0061-63 and the Health Studies Chart attached to Response to Comments set 0009. Despite the comment's claims to the contrary, the SREIR does not imply that field studies and reports submitted to the County have no informational value or should be ignored. The field studies submitted in comments on the SREIR (August 2020) are summarized and disclosed in the SREIR (October 2020). An expanded discussion of the studies and their findings is included in the Health Studies Chart, which also notes that each study will be considered by the County decisionmakers. The SREIR (October 2020) does not discount any particular study or the role of field studies generally. The SREIR took a complementary approach by summarizing and disclosing the findings of field studies and relying on the HRAs performed under the 2015 FEIR as a means of quantifying and assessing exposure from Project activities. As noted in Response to Comment 0061-80, this approach is consistent with the LA County Report's recognition that epidemiological studies can lack information on "individual levels of exposure to emissions" and that well-designed exposure measurements are "needed to elucidate the actual health implications for populations near oil and gas sites" (Los Angeles County Department of Public Health 2018, pp. 5–6).

The SREIR (October 2020) relied on the HRAs' precise, commonly accepted approach of assessing Project-specific health risks. Under CEQA, lead agencies are afforded deference in making factual determinations and in evaluating potentially conflicting evidence. See *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 514 ("a decision to use a particular methodology and reject another is amenable to substantial evidence review[.]"); *Association of Irrigated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383 (when experts in a subject area dispute the conclusions reached by other experts whose studies were used in drafting the EIR, the EIR need only summarize the main points of disagreement and explain the agency's reasons for accepting one set of judgments instead of another); *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 393, 409 (California Supreme Court noting "[t]he issue is not whether the studies are irrefutable or

whether they could have been better. The relevant issue is only whether the studies are sufficiently credible to be considered as part of the total evidence that supports the findings”).

0061-88

This comment states that the takings analysis in the SREIR’s (October 2020) new Alternative 7 – 2,500-Foot Setback Alternative discusses general legal principles without sufficient explanation of the specific applicability within Kern County.

The SREIR (October 2020) expands upon the takings analysis already conducted in the SREIR (August 2020). It provides a discussion of the relevant caselaw governing potential regulatory takings wherever they occur—and these guiding legal principles are not limited by jurisdictional boundaries. As explained in the SREIR (October 2020) regulations—including land use regulations—that impede access to a mineral right can be deemed to be a regulatory taking, requiring just compensation from the governmental agency. See SREIR (October 2020), Vol. 1, at 6-43–45. The facts and legal principles in these governing authorities can be applied to the potential circumstances that could arise in Kern County or in any other jurisdictions, as explained in the SREIR. The general legal principles in the SREIR’s explanation thus appropriately consider takings in evaluating this Project alternative.

0061-89

The comment states that the SREIR’s reliance on general legal principles and caselaw does not address prior comments presented in the September 16, 2020, letter, citing back to Comment 0009-41. The comment also states that these principles do not render setbacks a taking, and that land use and zoning ordinances limiting oil and gas drilling to promote public health are a legitimate exercise of police power, citing Comment 0009-41 in reiterating this comment. Comment 0009-41, referenced by this comment, also cites to *Friel v. County of Los Angeles* (1959) 172 Cal. App. 2d 142 (*Friel*) as an example of an ordinance restricting drilling.

Friel concerns an ordinance restricting drilling in residential zones, which is different from imposing a blanket quarter-mile setback, severely limiting or eliminating the ability to drill in areas that are already used for industrial or agricultural activities. Please see Responses to Comments 0009-41 and 0009-83 through 0009-88, addressing the legal authorities; see also SREIR (October 2020), Vol. 1, at 6-43–45. Under the guiding caselaw, the zoning and land use authority inherent in the police power is not without limits or effects. The takings clause “does not prohibit the taking of private property, but instead places a condition on the exercise of that power...,” and it “is designed not to limit the governmental interference with property rights *per se*, but rather to secure *compensation* in the event of otherwise proper interference amounting to a taking.” *First English Evangelical Lutheran Church of Glendale v. County of Los Angeles* (1987) 482 U.S. 304, 314–315 (emphasis original). Zoning ordinances may be properly enacted, but they may also trigger the need for the local agency to pay just compensation where the ordinance amounts to a regulatory taking. In addition to the other reasons Alternative 7 is infeasible, the risk of even one takings claim, and the associated financial burden and potentially litigation, must be factored in to the SREIR’s feasibility analysis of the alternative. The comment, in referring back to Comment 0009-41, suggests the oil and gas activities undertaken pursuant to the Project constitute a nuisance, and thus an exception to the requirement to compensate a taking, but neither Comment 0009-41 nor the comment provides information to support that inference. Oil and gas operations are not *per se* nuisances, and there is no presumption of a nuisance merely because oil and gas operations exist or will exist.

0061-90

The comment states that the SREIR does not explain why setbacks in other jurisdictions that are equal to or greater than 2,500 feet do not pose regulatory takings risks. The comment reiterates statements made in Comments 0009-85 and 0009-86, providing examples of setbacks in other states.

Please see Responses to Comments 0009-85 and 0009-86. Please also see SREIR (October 2020), Vol. 1, at 6-34–45. The SREIR noted that the Ventura County 2040 General Plan amendment, adopted in September 2020, established setbacks of 1,500 and 2,500 feet and is currently being challenged in court. The examples of out-of-state setbacks are not accompanied by additional information or context, and some out of state setbacks have been challenged as unconstitutional. See *Energy Management Corp. v. City of Shreveport* (5th Cir. 2005) 397 F.3d 297 (holding that mineral estate holders who challenged an ordinance that banned all oil-and-gas drilling within 1,000 feet of the lake had suffered an injury, although the ordinance was invalid for other reasons so the takings claim was not ripe).

While these out-of-state setbacks exist, the SREIR’s analysis is based on an understanding of the potential activities within Kern County, including the companies operating within the County. If a blanket 2,500-foot setback was established that limited drilling, many operators would not be allowed to continue using their property as they have. See Response to Comment 0009-41. These existing operators have invested substantial resources and infrastructure in their property rights

in the County. Even if operators have profited from those investment so far, their investment-backed expectations for the field are based on the prospect of continued drilling of new wells within this portion of the field. See *Avenida San Juan Partnership v. City of San Clemente* (2011) 201 Cal.App.4th 1256, 1273. This would be particularly true for operators who have invested in their properties exclusively for use as an oil field or oil and gas assets. *Penn Cent. Transp. Co. v. City of New York* (1978) 438 U.S. 104, 130, fn. 30. Therefore, the updated SREIR's analysis is based on information specific to the operators and the implications of a 2,500-foot setback within Kern County. The final determinations on the matter of the legal validity of other jurisdictions setbacks is not Kern County decisionmakers' responsibility and is not a CEQA issue.

0061-91

The comment states that the limits on agricultural acreage disturbance set forth in MM 4.2-1 should trigger similar concerns about takings liability. The comment also states that abating a nuisance does not effect a taking, and that the significant and unavoidable Project impacts constitute a nuisance.

The existence of significant and unavoidable impacts in a CEQA analysis does not equate to a public nuisance under Kern County's Ordinances (Ch. 8.44)—these are separate governing regulatory regimes, and it cannot be presumed that a project with significant and unavoidable impacts will also be violating the nuisance ordinance. It is appropriate for the SREIR to assume that the Project will comply with applicable rules and regulations. *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 141 ("Furthermore, we must presume and expect that the County will comply with its own ordinances,..."). With respect to MM 4.2-1, as set forth in the SREIR (October 2020), the measure provides in part that disturbance acreage per well shall be limited, depending on the Subarea of the well. This precise, targeted limitation still allows operators to access mineral rights and is not comparable to Alternative 7, which would propose a much broader, sweeping 2,500-foot setback. Therefore, MM 4.2-1 does not risk financial exposure from takings liability.

0061-92

The comment states that the SREIR should explain what constitutes an excessive distance that would raise takings concerns and states that the SREIR should explain whether the Ventura County lawsuit has merit or is defensible.

Please see SREIR (October 2020), Volume 1, at 6-34–45 and Responses to Comments 0009-41 and 0009-83 through 0009-88, addressing similar comments regarding the potential financial exposure related to takings claims. Ventura County is currently involved in litigation challenging its setback ordinances, and defending the lawsuit is likely costing that county time and money, regardless of the merits. The SREIR's consideration and rejection of Alternative 7 is based on a review of the relevant takings jurisprudence, an understanding of the operators within the County that would be impacted by such a setback, and whether such a setback would achieve the objectives of the Project and reduce environmental impacts. Because of consideration of myriad factors unique to this Project, a setback deemed feasible in one jurisdiction may not be feasible in another, and "[b]right line' precedent is not the prevailing jurisprudential norm in this area of the law." *Twain Harte Associates, Ltd. v. Cnty. of Tuolumne* (1990) 217 Cal.App.3d 71, 83–84. The SREIR and these Responses to Comments set forth the rationale for the determination that a 2,500-foot setback alternative presents unacceptable financial risks, including the risk of protracted litigation and compensable claims. The final determinations on the Ventura County lawsuit as to merit or defensibility is not Kern County decision makers responsibility and is not a CEQA issue.

0061-93

The comment states that there has been substantial information developed since 2013 affirming an association between proximity to oil and gas development and health impacts, and cites a 2019 study from the Los Angeles Department of Public Works whose purpose was to assess development of potential setbacks from receptors.

Please see Responses to Comments, 0061-92, 0009-41, and 0009-83 through 0009-88. The SREIR's analysis of Alternative 7 is based on careful consideration of a variety of factors unique to the County, including the robust analysis already conducted as part of this Project in connection with noise and air quality impacts. Under this Project, setbacks on specific wells may be imposed based on particularized analysis of the potential impacts from the well(s), given well characteristics such as depth, and siting considerations such as proximity to sensitive receptors. This Project encompasses a greater number of wells and a larger geographic area than the City of Los Angeles, where oil development is more fragmented, more urban. This Project also includes numerous new mitigation measures applicable to oil development. Every jurisdiction must determine whether a given project is feasible based on a particularized analysis, including the financial exposure from risk of litigation based on these factors. The SREIR's analysis takes these factors into account and contains a thorough discussion of the infeasibility of a 2,500-foot setback alternative, which would be broadly applied to the detriment of affected mineral rights owners, as compared to lesser setback distances or comparable setback distances that are tailored to address specific impact areas, such as noise and air quality, and that take into account the characteristics of the specific well(s) and location(s) being drilled.

0061-94

The comment states that since September 16, 2020, Los Angeles and Colorado have enacted new rules governing setbacks.

Please see Responses to Comments 0061-92, 0061-93, 0009-41, and 0009-83 through 0009-88. Los Angeles, Colorado, and Kern County are vastly different jurisdictions from one another. The SREIR, in evaluating Alternative 7, has carefully considered factors that are most pertinent to this Project in Kern County, including geographic considerations, the scale, history, and outlook of oil and gas development, the whole of the Project, including other mitigation measures, Project objectives, and impacts, as well as the likelihood of litigation (whether one lawsuit or many) and the potential exposure from not only the cost of the litigation, but also the cost of compensation for a taking. As the SREIR and these Responses to Comments explain, the 2,500-foot setback alternative (Alternative 7) is not feasible. This comment is noted and will be considered by County decisionmakers.

0061-95

The comment states that the SREIR does not adequately consider ways to minimize takings liability risk, and should also consider undertaking an amortization study similar to Culver City's actions in its proposed phase-out.

As thoroughly articulated in the SREIR (October 2020), Vol. 1, at 6-34–45 and in these Responses to Comments, Alternative 7 is not a feasible alternative. This comment is noted and will be considered by County decisionmakers.

0061-96

The comment states that the alternatives analysis in the SREIR (August 2020) was not revised or updated in the SREIR (October 2020)—in particular, the analyses of the Drilling Ban of Agriculturally Productive Land Alternative (Section 6.6.1); Drilling Ban on All Lands Alternative (Section 6.6.2); Zero Net Gain Alternative (Section 6.6.7); No Project Alternative (Section 6.7.1); Conditional Use Permit Alternative (Section 6.7.2); Reduced Ground Disturbance Alternative (6.7.3); and No Hydraulic Fracturing Alternative (Section 6.7.4). The comment also notes that the SREIR (August 2020) rejects the No Hydraulic Fracturing Alternative based on an “unsupported assertion” that local agencies’ authority to regulate every step in the hydraulic fracturing process is the subject of legal disputes pending in California courts. The comment states that plaintiffs did not appeal the trial court’s decision in *Chevron et al. v. County of Monterey*, Case No. 16CV003978, Final Statement of Decision (Jan. 25, 2018), so the case is not currently pending.

Please see Responses to Comments 0009-90 through 0009-97 regarding previous critiques on the alternatives discussed above. The comment does not raise any new points or evidence that calls into question the sufficiency of those alternatives analyses and therefore does not require an additional response. As for the comment’s claim that the trial court in *Chevron et al. v. County of Monterey* upheld Measure Z, that is correct. However, the trial court determined that the plaintiffs lacked standing to pursue a facial challenge to Measure Z (in particular, Policy LU-1.22’s prohibition of WST) on the basis that it is preempted by state law and thus the trial court did not decide on the merits of whether local agencies have authority to regulate every step of, or even ban, the hydraulic fracturing process, or whether doing so is preempted by state law. Final Statement of Decision (Jan. 25, 2018), at 21–22. The SREIR’s (October 2020) position that local agencies’ ability to ban hydraulic fracturing is legally undecided and subject to dispute remains accurate. See SREIR (October 2020), Vol. 1, at 6-28.

0061-97

The comment quotes language from the Public Resources Code, section 21166 (setting forth requirements for when a supplemental or subsequent EIR must consider new information) and states that, since the certification of the 2015 FEIR, new scientific information about oil and gas impacts has come to light and should be incorporated in the SREIR.

Please see Response to Comment 0009-98, responding to a similarly general comment that new information exists about oil and gas impacts. Please also see GR-1 – Beyond the Scope of the SREIR. New scientific information related to oil and gas impacts does not constitute a “changed circumstance” or “new information” requiring supplemental environmental review under CEQA, as discussed in more detail with respect to specific issues raised previously in the Responses to Comments 0009-99 through 0009-126. As the California Supreme Court has explained, the provisions governing supplemental CEQA review “are designed to balance CEQA’s central purpose of promoting consideration of the environmental consequences of public decisions with interests in finality and efficiency.” *Friends of College of San Mateo Gardens v. San Mateo County Community College Dist.* (2016) 1 Cal.5th 937, 949. Here, the introductory comment is a general statement reiterating some previous comments (addressed in Responses to Comments 0009-99 through 0009-126) and does not raise either substantial changes in circumstances or new information requiring supplemental analysis under Public Resources Code, section 21166 and CEQA Guidelines, section 15162.

0061-98

The comment states that updates to the SREIR (October 2020) are arbitrary, and that some topics are updated while others are not. The comment is an introductory comment and continues in Comment 0061-99.

Please see Response to Comment 0061-99.

0061-99

The comment continues from the Comment 0061-98 stating that the updates to the SREIR (October 2020) are arbitrary, and provides an example. The example given in this comment references the SREIR (October 2020), Vol. 1, at 2-5. In that introductory chapter, the SREIR explains: “This SREIR is a supplemental analysis of the CEQA deficiencies in five topical sections of this Chapter 4: Section 4.2, Agriculture and Forest Service; Section 4.3, Air Quality; Section 4.9, Hydrology and Water Quality; Section 4.12, Noise; and Section 4.17, Utilities and Service Systems.” It then adds, in italicized text indicating it is new language: “This SREIR (October 2020) includes additional analysis and text modifications to address the technical reports submitted in comments in response to the earlier SREIR (August 2020), a full analysis of the alternative for a 2,500-foot setback from sensitive receptors, and additional analyses and mitigation measures.”

The SREIR (October 2020) was updated as warranted for clarity based on the comments received. Please see GR-1 – Beyond the Scope of the SREIR. Many comments discussed topics that were thoroughly addressed in the 2015 FEIR and did not include information that rose to the level of new and significant information or changed circumstances. Given CEQA’s policy of promoting the “finality and efficiency” of a completed EIR, updates in response to every comment were not warranted where the 2015 FEIR contained a sufficiently robust discussion. *Friends of College of San Mateo Gardens*, 1 Cal.5th at 949.

0061-100

The comment states that the SREIR fails to take into account a Pennsylvania grand jury report assessing impacts from unconventional oil and gas development in that state, a letter from the California Attorney General’s Office laying out the City of Arvin’s legal authority to adopt setback provisions for oil and gas sites, information on oil prices and the COVID-19 pandemic, and information on orphan and idle wells in the state.

As explained in the SREIR (October 2020), Vol. 1, at 6-37, impact assessments of oil and gas operations outside of California are less useful and their conclusions do not necessarily apply to California. The Attorney General’s letter on the City of Arvin’s setback ordinance states generally that local setbacks may be established to protect health and safety, which is consistent with the setbacks established in the SREIR (October 2020). See GR-5 – Setbacks and Mitigation Measure Trigger Distances. The Attorney General’s letter also relies on specific factual assumptions regarding access to oil and gas resources within the bounds of the City of Arvin:

Importantly, the proposed restrictions will not prohibit all oil and gas operations in the City but rather the Ordinance will allow such operations to continue in a manner that prevents the future placement of wells near designated sensitive areas. . . . The City has determined that oil and gas resources located within Arvin’s prohibited zones and setbacks can be accessed through horizontal directional drilling and other methods, including rezoning areas to change allowed uses. (Becerra 2018, p. 4)

Such access is only possible in certain areas within Kern County. See SREIR (October 2020), Vol. 1, at 4.2-34, and 4.2-36–40. Please see Response to Comment 0009-101 regarding oil price volatility; Responses to Comments 0061-2, 0009-2, 0009-4, 0009-97-101, and 0009-108 on the COVID-19 pandemic; and Responses to Comments 0009-121 and 0009-122 regarding orphan and idle wells.

0061-101

The comment states that references cited the SREIR (October 2020) are relevant to other areas of analysis.

This comment falls outside the scope of the limited CEQA review required by the Court of Appeal’s decision. Please see GR-1 – Beyond the Scope of the SREIR. First, the comment states that the Hydrology and Water quality section in the SRIER (October 2020) discussed a report on the 2019 Cymric oil spill, which caused bird fatalities, but was not added to the Biological Resources section. Impacts to biological resources are not among the areas that the Court of Appeal required to be addressed. The SREIR notes that the Cymric incident resulted in four bird fatalities, none of which were species listed as threatened or endangered under California and federal law, or identified as a bird species of special concern by the California Department of Fish and Wildlife. See SREIR (October 2020), Vol. 1, at 4.9-184. The comment does not identify any significant new

information regarding the four bird fatalities showing that the Project would have new or substantially more severe impacts to biological resources that would require analysis in the SREIR.

The comment also states that the Air Quality section in the SRIER (October 2020) discussed a study by the Concerned Health Professionals of New York and Physicians for Social Responsibility (2019), but the study's discussion of climate change was not added to the Greenhouse Gas and Global Climate Change section.

Greenhouse gas analysis is not among the areas that the Court of Appeal required to be addressed, and the comment does not identify any significant new information in the study showing that the Project would have new or substantially more severe greenhouse gas impacts that would require analysis in the SREIR.

The comment also states that the SREIR mischaracterized a document posted on the Center for Biological Diversity's website. The document was not mischaracterized, but was accurately cited as evidence that adverse effects of grazing have been asserted. See SREIR (October 2020), Vol. 1, at 4.2-24. Please see Response to Comment 0005-2 regarding this statement, which was carried forward in the SREIR (October 2020) unchanged from the Supplemental Environmental Impact Report prepared for analysis of Project impacts on rangeland and grazing lands (2018 SEIR). The 2018 SEIR was certified by the County Board of Supervisors on December 11, 2018, and was not legally challenged. Impacts to rangeland and grazing lands are not among the areas that the Court of Appeal required to be addressed.

0061-102

The comment states that the SREIR (October 2020) dismisses a number of health studies submitted in comments on the SREIR (August 2020) regarding potential water quality impacts of oil and gas operations.

Please see Response to Comment 0061-33. That response explains that the SREIR does not purport to provide a comprehensive summary of these studies' respective findings. However, the SREIR notes that these studies collectively provide evidence of the potential of oil and gas activities to violate water quality standards or waste discharge requirements, consistent with the analysis in the 2015 FEIR. See SREIR (October 2020), Vol. 1, at 4.9-188. With respect to the comment's specific statement that the SREIR incorrectly claims that McMahon et al. (2019) is "not specific to Kern County," this error has been corrected in Response to Comment 00061-33.

0061-103

The comment states that the SREIR fails to include updated information or analysis regarding recent spills, leaks and accidents caused by oil and gas activity in Kern County.

Please see Responses to Comment 0009-123 and 0009-126 regarding the SREIR's discussion of recent spills, explosions and accidents associated with oil and gas activity. As discussed in those responses, the SREIR (October 2020) was updated to include a more detailed discussion of the recent surface expressions that occurred in Kern County. See SREIR (October 2020), Vol. 1, at 4.9-183-184. The SREIR includes numerous detailed mitigation measures to reduce the frequency and/or consequences of hazardous materials spills and soil contamination. See SREIR (October 2020), Vol. 1, MM 4.8-1 to 4.8-22; please see also Response to Comment 0009-123.

0061-104

The comment states that the SREIR (October 2020) did not appropriately consider the audit of the SJVAPCD's emission reduction credit (ERC) program.

The SREIR explains that ERCs are still valid for use in the SJVAPCD for permitted sources and will not inhibit the SJVAPCD's ability to reach attainment. See SREIR (October 2020), Vol. 1, at 4.3-88, 110; see also Response to Comment 0006-13. The SJVAPCD's Annual Offset Equivalency Report referenced by the comment explains that changes to the SJVAPCD's ERC program now require surplus at time of use ERCs until such time as equivalency is again demonstrated. This ensures that only real, permanent, quantifiable, surplus, and enforceable emission reductions are utilized for permitting projects in Kern County. Courts have routinely held that lead agencies may rely on regulatory programs that provide assurance that regulatory programs will avoid or reduce significant environmental impacts under CEQA. See, e.g., *Oakland Heritage Alliance v. Oakland* (2011) 195 Cal.App.4th 884, 906 ("a condition requiring compliance with regulations is a common and reasonable mitigation measure, and may be proper where it is reasonable to expect compliance"); *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal.App.4th 214, 243.

Lead agencies may also assume that other agencies charged with enforcing environmental regulations will do so. *Towards Responsibility in Planning v. San Jose* (1988) 200 Cal.App.3d 671, 680 (“City is not obliged to speculate about effects which might result from violations of its own ordinances or water quality standards set by other agencies”). Neither the SJVAPCD nor CARB have invalidated the ERC program, and the SREIR may continue to rely on that program as a valid mitigation measure under CEQA. Given that the SJVAPCD has committed to working with CARB to audit the program and has promptly implemented surplus at time of use ERCs as a response to the audit’s findings, it is not accurate to presume that the SJVAPCD will not follow the law, as nothing that the SJVAPCD has done in the audit process suggests that the SJVAPCD believes that its actions are not legal. The comment’s assertion that the SJVAPCD is likely to engage in illegal conduct is without support or evidence and is purely speculative.

0061-105

The comment states that the SREIR (October 2020) fails to consider and incorporate significant new information on harms from oil and gas operations.

This comment is introductory and does not require a detailed response. Please see GR-1 – Beyond the Scope of the SREIR and Responses to Comments 0009-104, 0009-112, and 0009-113.

0061-106

The comment states that the Center for Biological Diversity has submitted a petition to the U.S. Fish and Wildlife Service to list the Temblor legless lizard as endangered or threatened under the federal Endangered Species Act. The comment describes threats to the species, including habitat loss and human disturbance, to which oil and gas activity can contribute and states that the species has been found in the McKittrick and Midway Sunset oil fields.

This comment falls outside the scope of the limited CEQA review required by the Court of Appeal’s decision. Please see GR-1 – Beyond the Scope of the SREIR. The comment does not identify significant new information showing that the Project would have new or substantially more severe impacts that would require analysis in the SREIR. The 2015 FEIR identified the Temblor legless lizard as a special-status wildlife species present in the Project Area. See SREIR (October 2020), Vol. 3, at 4.4-144. The 2015 FEIR discussed impacts to special-status wildlife species, including mortality, injury, or displacement; loss or degradation of native habitat; alterations to existing topographical and hydrological conditions; interference with wildlife movement or migration; disturbance from noise, light, or dust; disturbance due to increased human presence; and risk of injury or mortality from maintenance vehicles on access roads. See SREIR (October 2020), Vol. 3, at 4.4-170–172. Based on the findings of Papenfuss and Parham (2013), the presence of the Temblor legless lizard in the area of existing oil fields (between Highway 33 and the Temblor Range, between McKittrick and Taft on the west side of the southern San Joaquin Valley) was identified in the 2015 FEIR, and one of the sites for this species reported by Papenfuss and Parham (2013) is on Shale Road within the Midway Sunset oil field. SREIR (October 2020), Vol. 3, at 4.4-122. Potential impacts on the Temblor legless lizard were evaluated based on the potential occurrence of the species in each Project Area tier and Subarea. Because the Temblor legless lizard was only recently distinguished from the silvery legless lizard, these species were considered together for purposes of impact analysis. See SREIR (October 2020), Vol. 3, at 4.4-89–90, 189–190, 192, and 197–198. Please see Response to Comment 0009-112 for additional discussion regarding impacts on and mitigation for legless lizards, including the Temblor legless lizard.

0061-107

The comment states that the SREIR fails to address and incorporate new information from a November 2020 performance audit conducted by the California Department of Finance to evaluate CalGEM’s compliance with the UIC and WST programs. The comment notes several specific compliance issues identified in the Final Audit Report, including CalGEM’s use of “dummy” or placeholder projects to issue permits for new wells, improper approval of project modifications and expansions through the infill well review process, and approval of UIC projects and well permits by unauthorized agency staff. The comment claims that due to these and “other violations” cited in the Audit Report, any statement in the SREIR that compliance with CalGEM regulations will result in mitigation of oil and gas impacts is “unsupported.”

The comment’s statement that the Final Audit Report found “systemic and pervasive violations by the agency” mischaracterizes the report’s findings. The Final Audit Report concludes that “CalGEM’s UIC project and well permit, and WST permit processes *generally complied with UIC and WST statutes and regulations*” (DOF 2020, p. 1; emphasis added). The report goes on to identify “instances of non-compliance and areas of improvement” regarding CalGEM’s “operational practices and administration of the UIC and WST programs” (DOF 2020, p.1)

These compliance issues were addressed in CalGEM’s November 6, 2020, response to the draft Audit Report, which responds to each of the report’s findings and recommendations. First, as to the use of “placeholder” projects, CalGEM noted that the

majority of injection wells approved under such placeholder projects will be merged with existing steam injection UIC projects that have valid Project Approval Letters. The agency also noted that it has already rescinded injection approval for all wells identified that cannot be merged with existing UIC projects approved after the new UIC regulations became effective April 1, 2019 (DOF 2020, p. 8). The agency also stated that it is currently “engaged in a systematic review of all approved underground injection projects to identify and address potential data gaps relative to current requirements,” and will be developing updated Standard Operating Procedures which will include, among other things, “policies and procedures applicable to approvals for underground injection projects and individual injection wells, as well as documentation standards for review of such approvals” (DOF 2020, pp. 8, 10).

CalGEM also responded to the Final Audit Report’s findings that the agency improperly approved project modifications and expansions through the infill well review process. CalGEM’s Response explains that the agency’s determination as to whether the addition of wells to an existing UIC project constitutes a significant change to the scope of the project triggering the need for a Project Approval Letter necessitates “case-by-case treatment,” and the UIC regulations provide for project-specific application of professional engineering and geological analysis. To improve consistency in infill project determinations, CalGEM is working with the Water Boards to develop “documented policies and procedures for an interagency evaluation of injection well additions to existing underground injection projects based on recognized distinctions between ‘infill’ or similarly non-expansive additions of wells versus additions of wells that implicate more substantial changes to the existing project” (DOF 2020, p. 6). CalGEM is working with the Water Boards to update the memorandum of agreement checklist documenting expectations for inter-agency review of underground injection project data, which is expected to be complete by 2021 (DOF 2020, pp. 6–7). In response to the Audit Report’s recommendation that the agency conduct periodic reviews of infill well approvals issued by districts, CalGEM states that its longstanding policy is to conduct periodic reviews of approved UIC projects, which include consideration of any wells added to the project under the “infill” approval process (DOF 2020, p. 7). CalGEM anticipates adopting policies and procedures relating to periodic review of UIC projects as part of its ongoing SOP development process (DOF 2020, p. 7).

Finally, CalGEM responded to the Final Audit Report’s findings regarding approval of UIC projects and well permits by unauthorized agency staff. While the agency recognized the importance of ensuring that UIC program approvals “are completed by staff with appropriate and suitably documented authority,” the agency noted that agency officials with approval authority under the statute and regulation, such as the State Oil and Gas Supervisor, district deputies, and other officials, may properly delegate their approval authority to one or more subordinates (DOF 2020, p. 3). CalGEM also noted that it intends to “update its practices regarding documentation of approval authority delegation and determine whether any new or revised delegations and documentation are necessary” (DOF 2020, p. 3). For example, CalGEM is currently developing a UIC WellSTAR Project Approval Process that will make review and approval policies part of the agency’s workflow structure for processing UIC approvals. CalGEM has agreed to submit a detailed Corrective Action Plan addressing the Final Audit Report’s recommendations and findings, including milestones and implementation dates, within 60 days of its receipt of the report, and will update the Corrective Action Plan every six months until all planned actions have been implemented.

The County was not required to address the findings of the Final Audit Report in the SREIR because the report does not constitute a “changed circumstance” or “new information” requiring supplemental environmental review under CEQA. A supplemental EIR is not required unless “substantial changes to the proposed project, or to the circumstances under which the project is undertaken, will require major revisions of the prior EIR due to new or substantially more severe environmental impacts”; or “new information of substantial importance is available, which was not known and could not have been known when the prior EIR was certified, shows that the project will have new or substantially more severe environmental impacts...” Cal. Pub. Res. Code § 21166; CEQA Guidelines § 15162.

Here, the comment does not raise either substantial changes in circumstances or new information requiring supplemental analysis under CEQA. The SREIR’s Hydrology and Water Quality section (4.9) contains an extensive discussion of the UIC and WST programs, including the recent updates to the UIC Regulations. See SREIR (October 2020), Vol. 1, at 4.9-112–117, 4.9-147–153, and 4.9-157–159.

0061-108

The comment states that the SREIR fails to address health and safety consequences of California’s orphan and idle well crisis.

See Responses to Comment 0006-3 and 0009-121 through 0009-122, regarding regulation of orphan and idle wells and indemnity bonding requirements for such wells. As noted in those responses, idle and orphan wells, and the plugging and abandonment and bonding requirements for those wells, are regulated by CalGEM and not by the County. Existing idle wells within the Project Area are properly considered part of the environmental baseline for CEQA purposes, not a consequence of

the Project. The 2015 FEIR nevertheless describes and analyzes potential impacts associated with future well abandonment and reactivation of idle wells in the Project Area. See SREIR (October 2020), Vol. 5, at 0007-275–276 (FEIR 2015 GR-Haz-2: Idle Wells). The comment also states that fugitive emissions from idle wells are not assessed in the SREIR air quality analysis. This is incorrect. The SREIR assumed controlled and uncontrolled fugitive volatile organic compound (VOC) emissions from idle wells. See SREIR (October 2020), Vol. 1, at 4.3-114–115. Fugitive emissions from idle wells are not considered in the multi-well HRA, but this is because it assesses the health risk posed to sensitive receptors from a multi-well scenario with 48 wells surrounding one sensitive receptor. As explained in GR-6 – Health Risk Assessments, and Response to Comment 0014-17, the risk present from this scenario is lifetime cancer risk, which is overwhelmingly (over 99 percent) driven by DPM. Even doubling the VOC emissions assumed in the multi-well HRA would not materially change the multi-well HRA’s conclusion when so little of the risk is due to VOCs.

0061-109

The comment states that the SREIR fails to implement a mitigation measure requiring all operators to remediate legacy oil and gas wells.

See Responses to Comments 0006-3 and 0009-121 through 0009-122. The plugging and abandonment of idle wells is regulated pursuant to state law, and not by the County. Furthermore, in response to comments, the SREIR (October 2020) has been revised to add new MM 4.2-1.B, requiring removal of legacy unused oil and gas equipment (where legacy equipment is present and the applicant has the right to remove it) as partial mitigation for conversion of agricultural land. Please see SREIR (October 2020), Vol. 1, at 4.2-31–33 and Responses to Comments 0061-111, 0002-2, 0008-10, and 0008-11 for further discussion of new MM 4.2-1.B.

0061-110

The comment states that new MM 4.2-1.B, which addresses the impact of agricultural land conversion, does not address other impacts of legacy wells, but does not identify a specific concern or impact related to legacy wells.

Regarding new MM 4.2-1B, please see SREIR (October 2020), Vol. 1, at 4.2-31–33, and Responses to Comments 0002-2, 0008-10, and 008-11. Regarding orphan and idle wells generally, please see SREIR (October 2020), Vol. 5, at 7.2-275–276 (2015 FEIR GR-Haz-2: Idle Wells), and Responses to Comments 0006-3, 0009-121, and 0009-122.

0061-111

The comment states that new MM 4.2-1 is inadequate because it fails to include a 1:1 remediation ratio requirement. The comment further states that the SREIR fails to explain why the 1:1 mitigation ratio included in the original mitigation measure can no longer be implemented.

Former MM 4.2-1(c) was removed based on the analysis in the SREIR (August 2020) that changing the former option for legacy equipment to a mandatory mitigation measure for all applicants would not be feasible. Not all surface owners’ property includes legacy oil and gas equipment, and, where such equipment exists, the applicant may not have the right to remove it. Please see SREIR (October 2020), Vol. 1, at 4.2-31–4.2-33, and Responses to Comments 0002-2, and 0008-9 through 0008-11, regarding new MM 4.2-1.B. Where applicants do not own or control legacy equipment, or where none is present, they cannot feasibly be required to remove such equipment in order to achieve a 1:1 ratio. However, where legacy equipment exists and the applicant does have the right to remove it, such removal would partially mitigate conversion of agricultural lands. Please also see Response to Comment 0059-9.

0061-112

The comment states that new MM 4.2-1 is inadequate because it limits the requirement to remediate legacy oil and gas equipment to operators who own legacy wells and equipment on the same parcel and does not establish a County fund for removal of legacy equipment.

Former MM 4.2-1(c) was removed based on the analysis in the SREIR that changing the former option for legacy equipment to a mandatory mitigation measure for all applicants would not be feasible, because there is no legal connection (nexus) and the legal authority to require operators who do not own or control legacy equipment to remove it and return agricultural land back to the surface owner as a mandatory condition of receiving a County permit. Please see SREIR (October 2020), Vol. 1, at 4.2-31–33, and Responses to Comments 0002-2 and 0008-9 through 0008-11 regarding new MM 4.2-1.B. Establishing a County fund or mitigation bank for legacy equipment removal is outside the scope of the SREIR but could be accomplished in a separate project to amend the County General Plan and/or the Ordinance at a later date. Please see Response to Comments 0059-12 and 0059-13.

0061-113

The comment states that the SREIR should include a broader well remediation mitigation measure that effectively mitigates all of the significant impacts caused by idle and orphan wells, but does not identify a specific concern or impact related to such wells.

This comment is noted and will be considered by County decisionmakers. This comment summarizes previous comments and therefore does not require a detailed response. Please see Response to Comment 0061-110; see also SREIR (October 2020), Vol. 1, at 4.2-31–33, and Responses to Comments 0002-2 and 0008-9 through 0008-11 regarding the adequacy of new MM 4.2-1.B to mitigate significant impacts caused by orphan and idle wells.

0061-114

The comment reiterates the request that Spanish-speaking residents be allowed to participate in the public process on the SREIR.

Please see Responses to Comments 0061-2, 0061-3, 0009-2, 0009-8, and 0009-9.

The comment also requests that the Project be rejected by the County. The reasons for not rejecting the Project were fully addressed in the 2015 FEIR's analysis of the "No Project Alternative." See SREIR (October 2020), Vol. 3, at 7-356 (2015 FEIR GR-Alt-2: Alternatives Evaluated in Detail in the EIR). The 2015 FEIR rejected the No Project Alternative as environmentally inferior and explained that the Project's development standards, conditions, and mitigation measures would include several new requirements that are more protective of the environment and human health than existing land use regulations pertaining to oil and gas development. Please see Responses to Comments 0007-3 and 0009-127.

0061-115

The comment states that comments on the SREIR (August 2020) were provided previously.

Please see Responses to Comments 0009-131 through 0009-159 for full responses to the September comments. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response.

0061-116

The comment states that the SREIR's Air Quality section is not adequately supported, is incomplete, has repetitive information, and contains some minor errors.

Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the judgment of the Court of Appeal, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. As to the comments in the referenced September 2020 comment letter, please see Responses to Comments 0009-131 through 0009-159. None of the minor items identified by the comment cause the SREIR to fail as an informational document under CEQA. In addition, none of the alleged errors cited by the comment are prejudicial or affect the SREIR's underlying air quality analysis and mitigation measures. "Absolute perfection is not required; what is required is the production of information sufficient to permit a reasonable choice of alternatives so far as environmental aspects are concerned. It is only required that the officials and agencies make an objective, good-faith effort to comply." *Residents Ad Hoc Stadium Comm. v. Board of Trustees* (1979) 89 Cal.App.3d 274, 286. The air quality analysis was not challenged in the Court of Appeal, and the analysis is not required to be revised in the SREIR. This comment does not state a specific concern related to the adequacy of the SREIR and does not require a detailed response.

00061-117

The comment states that the term "non-permitted" is utilized in various ways in the Air Quality section.

Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the judgment of the Court of Appeal, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. The term "non-permitted sources" is explained on page 4.3-82 to mean small equipment, well-related maintenance and treating operations, and routine business travel. See SREIR (October 2020), Vol. 1, at 4.3-82. These are pieces of equipment or activities that are not permitted by the SJVAPCD. The term is further explained to include trucks, automobile work trips, and onsite vehicles on page 4.3-85. See SREIR (October 2020), Vol. 1, at 4.3-85. The usage at page 4.3-111 was meant to refer to emissions from small oil and gas operators, not subject to Title V

permit requirements, which is explained just above the paragraph in which the term “non-permitted” is used. See SREIR (October 2020), Vol. 1, at 4.3-111. In all other places in the SREIR, the term appears to appropriately refer to activities not permitted by the SJVAPCD (such as mobile source emissions). An EIR does not require perfection. Please see also Response to Comment 0061-116.

0061-118

The comment states that the repetition of the various mitigation measures that have been clarified in the SREIR is confusing and that the Air Quality section is too long.

Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the judgment of the Court of Appeal, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. Please see Response to Comment 0061-116.

0061-119

The comment states that the SREIR fails to answer a question from the State and County CEQA Guidelines.

Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the judgment of the Court of Appeal, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. The updated (2018) CEQA Appendix G questions are accurately reflected in the SREIR. Question b) noted by the comment was removed from Appendix G in the most recent CEQA Guidelines update. See Office of Planning and Research, Final Adopted Text for Revisions to the CEQA Guidelines (OPR 2018, p. 56).

The comment also states that the SREIR (October 2020) fails to provide ambient air quality modeling for criteria pollutants. Please see Responses to Comments 0061-137 through 0061-161. Table 4.3-9 provides background baseline information for the Project Area and relates to the analysis in Impact 4.3-1 regarding whether the Project would conflict with or obstruct implementation of the applicable air quality plan. See SREIR (October 2020), Vol.1, at 4.3-73.

0061-120

The comment states that the SREIR does not mitigate all Project emissions due to its use of the SJVAPCD’s ERC program to offset emissions.

Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the judgment of the Court of Appeal, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. Please see Responses to Comments 0061-121 and 0061-122. The emission totals shown in Table 4.3-32 utilized to calculate the OG-ERA mitigation fees include all emissions from Project activities. See SREIR (October 2020), Vol. 1, at 4.3-132–133. Because MM 4.3-8 (in conjunction with MMs 4.3-1 through 4.3-4) will offset all Project emissions, no further mitigation is required.

0061-121

The comment states that the SREIR does not include emissions from construction of permitted equipment in the calculation of total Project emissions shown in Table 4.3-32 used to generate the OG-ERA mitigation fee values.

Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the judgment of the Court of Appeal, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. MM 4.3-2, MM 4.3-3, and MM 4.3-4 would reduce emissions from construction equipment utilized to construct stationary sources. These measures require (1) a Fugitive Dust Control Plan, which would reduce emissions of PM from construction activities; (2) that all off-road construction diesel engines not registered under CARB’s Statewide Portable Equipment Registration Program meet Tier 3 standards, only idle for 5 minutes, and are maintained in good operating order, which will reduce emissions of all criteria pollutants from construction equipment; and (3) that heavy-duty diesel haul vehicles from 2007 and older meet 13 Cal. Code Regs. section 2025, all on-road construction vehicles meet all applicable California on-road emissions standards, and that all on-road construction vehicles be properly tuned and maintained, which will reduce NO_x emissions. These mitigation measures together will reduce emissions from construction equipment utilized to construct permitted stationary sources. Please also see Responses to Comments 0009-16 through 0009-20 and 0061-9, which explain why the OG-ERA mitigation fee calculations are overly conservative.

0061-122

The comment states that emissions from the operation of permitted stationary equipment is significant and unmitigated.

Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the judgment of the Court of Appeal, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. The SREIR relies on the SJVAPCD's determination that emissions below the listed thresholds are less than significant and still allow the SJVAPCD to reach attainment. See SREIR (October 2020), Vol. 1, at 4.3-94, which cites the SJVAPCD *Guidance for Assessing and Mitigating Air Quality Impacts* [GAMAQI] as stating that "District implementation of NSR [New Source Review] ensures that there is no net increase in emissions above specified thresholds from new and modified Stationary Sources for all nonattainment pollutants and their precursors...the District's attainment plans show that this level of emissions increase will not interfere with attainment or maintenance of ambient air quality standards" (SJVAPCD 2015).

The SREIR states that the SJVAPCD air permit program requires that application of Rule 2201, which mandates that "new permitted stationary equipment include best available control technology and that all criteria pollutant emissions be offset to below thresholds of significance established by the District." See SREIR (October 2020), Vol. 1, at 4.3-110. Nonetheless, small amounts of emissions, determined to be less than significant by the SJVAPCD, will remain from operations of permitted stationary sources. These emissions have been determined by the SJVAPCD to be "not individually significant and are not cumulatively significant." See SREIR (October 2020), Vol. 1, at 4.3-94, citing SJVAPCD (2015), section 8.8.4. Thus, the SREIR's air quality analysis appropriately considers operational emissions from stationary sources below the SJVAPCD thresholds as less than significant and operational emissions above the threshold as being offset via the SJVAPCD ERC program required by Rule 2201. The SJVAPCD has also made the expert determination that emissions from exempt permitted equipment (emergency equipment) do not trigger a significance finding under CEQA. No further mitigation is required and these emissions are not required to be included in the OG-ERA calculations.

0061-123

The comment states that emissions below the SJVAPCD threshold from various stationary sources would not be offset. Please see GR-1 – Beyond the Scope of the SREIR.

The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the judgment of the Court of Appeal, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. As explained in Response to Comment 0006-122, the SJVAPCD GAMAQI determines that operational emissions from permitted stationary sources below the thresholds are less than significant and are not cumulatively significant. The SJVAPCD took into account the cumulative emissions from multiple projects in setting the GAMAQI CEQA thresholds at the particular level of significance that it did. The SREIR is allowed to rely on the SJVAPCD as the expert agency on air quality in the Project Area in making the same determination in the SREIR.

0061-124

The comment states that emissions from construction and operation of permitted stationary sources are not accounted for in the OG-ERA. Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the judgment of the Court of Appeal, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. Please see Responses to Comment 0061-121 through 0061-123.

0061-125

The comment states that the SREIR's discussion of the health effects of both PM_{2.5} and PM₁₀ is lacking.

Recommended language was inserted into the discussion of PM₁₀ and PM_{2.5} health effects in the SREIR (October 2020) based on prior comments. See SREIR (October 2020), Vol. 1, at 4.3-14–16, 4.3-28. The SREIR also discusses various studies that address potential relationships between various pollutants, including PM, and health effects. See SREIR (October 2020), Vol. 1, at 4.3-28–41. Many of these studies addressed PM emissions, among other criteria pollutants, and health effects. Please see Responses to Comments 0009-26, 0009-141, and 0009-108. Absolute perfection in an EIR is not required. "It is only required that the officials and agencies make an objective, good-faith effort to comply." *Residents Ad Hoc Stadium Comm. v. Board of Trustees* (1979) 89 Cal.App.3d 274, 286. Nothing that the comment states causes the SREIR to fail as an informational document nor changes the assumptions and analysis in the air quality chapter.

0061-126

Please see Response to Comment 0061-125.

0061-127

Please see Response to Comment 0061-125.

0061-128

The comment states that MM 4.3-8 is inadequate. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. Please see Responses to Comments 0009-17, 9-25 through 0009-28, 9-144 through 0009-148, and 0061-129 through 0061-132.

0061-129

The comment states that the SREIR appropriately revises the terminology for PM_{2.5} and PM_{2.5-10} size fractions but does not provide an adequate discussion of this size fraction to aid the reviewer in understanding the implications of the change in terminology.

The SREIR was changed in accordance with the previous comments, in which it was clear that there was an understanding of the terminology used. The revised terminology changes nothing regarding the SREIR's discussion of PM. Absolute perfection in an EIR is not required. "It is only required that the officials and agencies make an objective, good-faith effort to comply." *Residents Ad Hoc Stadium Comm. v. Board of Trustees* (1979) 89 Cal.App.3d 274, 286. Nothing complained of by the comment causes the SREIR to fail as an informational document nor changes the assumptions and analysis in the air quality chapter. Please see Response to Comment 0061-125.

0061-130

The comment states that the SREIR does not demonstrate that sufficient emission reductions are available in Kern County and the SJVAB to offset PM_{2.5} emissions from Project activities.

Please see Responses to Comments 0009-17 through 0009-29 and 0009-144 through 0009-148.

The comment then references the historic activity under the OG-ERA explained in the SREIR (October), Vol. 1, at 4.3-135–139. The comment first restates the percentage of available fees used or encumbered to fund emission reduction projects from SREIR Table 4.3-CC. As explained in the SREIR, the fees received by the SJVAPCD under the OG-ERA have ramped up quickly from 2016 to 2019, resulting in a need to sometimes carry over some portion of fees until the following year in order to identify and implement emission reduction projects. Though the comment suggests that the fact that between 17.5 percent and 63.3 percent of the available fees have been used or encumbered in any given year between 2016 and 2019 is somehow inadequate, this is not the case. Nothing in CEQA, the SREIR, or MM 4.3-8 requires the OG-ERA mitigation fees to be spent in the same year that they were paid. The Court of Appeal similarly found any gap between funding and implementation of emission reduction projects to be acceptable. See, e.g., Slip Opinion, at p. 67. The SREIR also states that, based on the SJVAPCD 2020 ISR Annual Report, the vast majority of the unencumbered balance of fees has been encumbered or is in the process of being encumbered, and thus very few to no mitigation fees will be carried over into 2021 by the SJVAPCD. See SREIR (October 2020), Vol. 1, at 4.3-138–139.

The SJVAPCD is continuing to ramp up its emission reduction project identification and implementation program, and in particular is attempting to identify large-scale emission reduction projects to fund with OG-ERA fees. There is no evidence that spending the OG-ERA fees is infeasible or that enough emission reduction projects cannot be found in Kern County and the SJVAB to reduce Project emissions to net zero as per the OG-ERA and MM 4.3-8. The historic activity for the OG-ERA and fees obtained under it, which has resulted in few to no fees being carried over to 2021, demonstrates the opposite. As explained in the SREIR, the SJVAPCD has received approximately \$101,348,145 in mitigation fees and has spent or encumbered approximately \$79,260,274. This means that 78 percent of the total fees received by the SJVAPCD between 2016 and 2020 have been spent. Thus, it is reasonable to assume that approximately 78 percent of the total OG-ERA fees received by the SJVAPCD have also been spent. There is no reason to assume that OG-ERA fees would have been spent or encumbered at a rate lower than the total of all funds received by the SJVAPCD. The SJVAPCD has received approximately \$84,719,099 in OG-ERA mitigation fee payments since the Ordinance was adopted. It is reasonable to assume that at least 78 percent of this value or \$71,164,043 has been spent.

The comment attempts to claim that the SREIR should look at the total fees collected and the total fees spent by the SJVAPCD since 2009. However, the OG-ERA was not in place in 2009. It is not arbitrary to look at the years in which the OG-ERA fees

were actually being collected in order to determine what percentage of those fees were spent. The comment's comparison going back to 2009 is irrelevant for purposes of determining what percentage of OG-ERA fees have been spent toward emission reduction projects. It is not necessary for the SJVAPCD to spend the OG-ERA fees as soon as it receives them or even in the same year that it receives them. The fact that the OG-ERA will result in more emission reductions than are required to reduce emissions from project activities to net zero further supports its efficacy. A large percentage of project emissions result from construction activities, including well drilling, and these emissions are temporary. However, the emission reduction projects funded by OG-ERA fees result in the permanent shutdown of emitting equipment and the permanent removal of those emissions from the SJVAB. Only the first year of those emission reductions is truly counted as mitigation obtained by the OG-ERA fees, despite the fact that those reductions continue in perpetuity.

The OG-ERA results in higher emission reductions than the emissions that occur in just one year from the Project and for which fees are paid. For example, fees collected for a well drilled in year one will result in reductions in year two which offset emissions from that well when the emission reduction project implemented with those fees is put into place. As the emission reduction project will continue to result in emission reductions in years three, four, five, etc., it will also offset to some extent construction activities from the Project occurring in those later years, even though those projects will also pay mitigation fees into the OG-ERA fund. The 2015 FEIR and the SREIR also take a conservative approach with respect to emissions from drilling and operating future wells by using 2012 oil and gas drilling and operations activity levels as the baseline for measuring impacts. Although the total number of active wells is expected to increase over time from the 2012 baseline activities, CEQA would have allowed the SREIR to subtract baseline activity levels from the total number of projected wells to determine the incremental increase attributed to the Project. The 2015 FEIR and the SREIR do not consider that increment; instead, the analysis treats every future well drilled and operated as a new well for which emissions will be mitigated via the OG-ERA. In other words, emissions from well drilling and operations that would otherwise have been subtracted as baseline activities are considered new impacts resulting from the Project, and will be mitigated accordingly. This goes further than CEQA requires and is a particularly conservative approach, considering that oil well drilling and operation in the County is ongoing and has occurred for many years. The SJVAPCD does not separately report on each ISR or ERA that it implements because this would place a large administrative burden on the agency.

0061-131

The comment states that the SREIR's statement that few to no mitigation fees will be carried over into 2021 by the SJVAPCD is not accurate.

The statement in the SREIR that the SJVAPCD Annual Report for 2020 states that the vast majority of the unencumbered balance has been encumbered or is in the process of being encumbered during 2020 means that few to no OG-ERA mitigation fees received by the SJVAPCD are being carried over into 2021. It is irrelevant that this statement refers to both ISR and ERA fees, as the OG-ERA fees would presumably be spent in the same proportion as all other fees and thus all, or nearly all, will now be encumbered or spent. The comment states that these fees will be "carried over" into the beginning balance in 2021, which is clearly not what the SREIR meant. The point is that the fees collected by the OG-ERA will be almost or completely spent or encumbered by 2021 and there will not be remaining funds in 2021 that have not been spent or encumbered. Thus, any gap between collection of air impact mitigation fees and spending for emission reduction projects under the OG-ERA will have been eliminated. The comment also states that encumbering the entire balance of the SJVAPCD's ISR and ERA program fees does not prove that there will be sufficient emission reduction projects once the Ordinance is reinstated. Please see Responses to Comments 0009-17, 0009-21, and 0061-130.

0061-132

The comment states that the SREIR fails to demonstrate that the OG-ERA would result in sufficient PM_{2.5} emission reductions because only 11 percent of the PM₁₀ emission reductions funded by the SJVAPCD in 2019–2020 are attributable to engine combustion, while 79 percent are from wood stove replacement. The comment also states that this shows that the types of projects envisioned by the SREIR are not being funded.

The types of emission reduction projects listed in the SREIR were mere examples of potential emission reduction projects that could be funded with OG-ERA fees. Nothing in MM 4.3-8 or the SREIR requires these types of projects to be funded. The comment seems to be suggesting that wood stove burning does not create PM_{2.5} emissions, when the CARB PMSIZE spreadsheet used to demonstrate potential PM speciation in the SREIR shows that approximately 90 percent of emissions from fireplaces and wood stoves are PM_{2.5} (CARB 2018). The types of emission reduction projects being funded with OG-ERA fees are irrelevant so long as NO_x, PM_{2.5}, and PM₁₀ emissions are being reduced as required by MM 4.3-8. The comment cites no evidence that PM_{2.5} emission reductions are not occurring, only that the projects mentioned as examples in the SREIR as

not the predominant emission reduction projects being implemented by the OG-ERA. Please see Responses to Comments 0009-144 and 0009-146 through 0009-148.

0061-133

The comment states that there is further mitigation that should be required for Project emissions.

Please see GR-1 – Beyond the Scope of the SREIR. The scope of the Court of Appeal’s decision did not include air quality impacts beyond those related to PM_{2.5} emissions, MM 4.3-8, and the multi-well HRA. CEQA does not require the SREIR to modify other portions of the air quality impact analysis. Please see Responses to Comments 0009-149 and 0009-150, which respond to the previously suggested mitigation measures. As to the mitigation measures in comments on the 2015 FEIR, the Pless comments on fugitive dust control suggest various other measures that should be adopted in addition to the measures in the SREIR. The air quality impact analysis considers and fully mitigates impacts from PM₁₀ emissions due to dust and other activities. See:

- SREIR (October 2020), Vol. 1, at 4.3-88–89, 4.3-97 (describing fugitive dust emissions as an included emission source for the air quality analysis utilizing EPA predictive emission factor equations to generate fugitive dust assumptions);
- SREIR (October 2020), Vol. 1, at 4.3-109 (emissions from construction including PM₁₀);
- SREIR (October 2020), Vol. 1, at 4.3-115–116 (describing that mobile source emissions include fugitive dust from on- and off-road travel during operations);
- SREIR (October 2020), Vol. 1, at 4.3-117 (explaining that fugitive dust emissions from onsite travel were estimated assuming that 90 percent of the onsite travel occurred on unpaved oilfield roads); and
- SREIR (October 2020), Vol. 1, Table 4.3-26, at 4.3-121 (showing total PM₁₀ emissions from mobile sources).

In addition, the HRAs conducted for the Project assume sources of fugitive dust as well. See SREIR (October 2020), Vol. 1, at 4.3-144. Construction activities within the Project Area are also subject to SJVAPCD Regulation VIII (Fugitive PM₁₀ Prohibition), which includes Rules 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities), 8041 (Carryout and Trackout), 8051 (Open Areas), 8061 (Paved and Unpaved Roads), and 8071 (Unpaved Vehicle/Equipment Traffic). See SREIR (October 2020), Vol. 1, at 4.3-64–65. Regulation VIII is intended to reduce ambient concentrations of PM₁₀ by requiring actions to prevent, reduce, or mitigate anthropogenic fugitive dust emissions. Applicants must also comply with MM 4.3-2, which requires a Fugitive Dust Control Plan in compliance with SJVAPCD fugitive dust suppression regulations. See SREIR (October 2020), Vol. 1, at 4.3-91–92. The SREIR is reasonably allowed to rely on SJVAPCD rules and regulations to mitigate dust emissions. Courts have routinely held that lead agencies may rely on regulatory programs that provide assurance that regulatory programs will avoid or reduce significant environmental impacts under CEQA. See, e.g., *Oakland Heritage Alliance v. Oakland* (2011) 195 Cal.App.4th 884, 906 (“a condition requiring compliance with regulations is a common and reasonable mitigation measure, and may be proper where it is reasonable to expect compliance”); *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal.App.4th 214, 243. Lead agencies may also assume that other agencies charged with enforcing environmental regulations will do so. *Towards Responsibility in Planning v. San Jose* (1988) 200 Cal.App.3d 671, 680 (“City is not obliged to speculate about effects which might result from violations of its own ordinances or water quality standards set by other agencies”).

The 2015 FEIR Fox comments asserts that the odor mitigation measure, MM 4.3-4, is inadequate. This measure was not challenged in court and is not required to be revised as part of the SREIR. The 2015 FEIR Fox comments next suggest various measures in addition to MM 4.3-8 but do not list specific mitigation measures, only general concepts. First are solar and wind energy. As explained in the SREIR, renewable energy alternatives were considered in the SREIR. See SREIR (October 2020), Vol. 1, at 6-16–20. Please also see Responses to Comments 0006-11 and 0006-14. The next concept is energy purchase agreements. It would be administratively infeasible for the County to determine what percentage of each project’s energy usage must come from solar or wind providers given the duration of the project, the size of the project area, and the scope of the various activities approved by the SREIR. It is not possible to determine now a mitigation measure that would mandate a certain percentage of energy, what kind of energy, and from where, for each applicant for the life of the Project.

Another comment requests that is low-emission EOR technology be mandated. As explained in the SREIR, an EOR alternative (Alternative 5) was considered and found to be technologically and economically infeasible. See SREIR (October 2020), Vol. 1, at 6-30–32. As the SREIR is required to adopt all feasible mitigation, infeasible mitigation is not required. The next concept is more stringent pollution controls than currently required by SJVAPCD rules and regulations. The County is not an air quality regulator, nor does it have experience necessary to draft and implement rules related to emission controls that go beyond

what the SJVAPCD has already adopted. Reliance on the SJVAPCD, as the expert air quality agency in the Project Area, to determine what is feasible, economically and technically, and cost-effective, is allowed under CEQA. In addition, because MM 4.3-8 will offset criteria pollutant emissions from Project activities to net zero, further mitigation is unnecessary. See SREIR (October 2020), Vol. 1, at 4.3-164–165.

The comment claims that the alternative to the mitigation trigger distance in MM 4.3-5 should be required of all projects. If a project meets the mitigation trigger distance in MM 4.3-5, then further mitigation is not required because there is no significant impact. These measures are not necessary to reduce impacts to less than significant if the project is far enough away from emitting activities based on the HRA assessment. The final concept is requesting that construction exhaust be addressed as it is not addressed in MM 4.3-8. This is incorrect. Table 4.3-32, which is the table utilized to calculate OG-ERA emission fees includes construction emissions. See SREIR (October 2020), Vol. 1, at 4.3-124–125. In addition, MM 4.3-3 and MM 4.3-4 require Tier 3 engines, reduced idling, and compliance with CARB regulations relating to engines. These mitigation measures will further reduce emissions from construction.

0061-134

The comment asserts that MM 4.3-6 noted by the comment as “Valley Fever and Pandemics” is inadequate and references a submitted report by Phyllis Fox.

The report details incidence of Valley Fever in San Diego, Monterey, and San Luis Obispo Counties associated with large-scale construction projects, including commercial scale solar projects. The report includes photos of large-scale mass grading of projects and links these impacts to oil and gas operations. No specific or site-specific information is included or referenced for the San Joaquin Valley portion of Kern County. No large-scale grading is involved in the oil and gas activities permitted by the Project, and the mitigation proposed by the comment is specific to such heavy equipment operations. Kern County has historically been the center of Valley Fever research in California and has experience with effective mitigation; however, there is no vaccine for Valley Fever at the present time. MM 4.3.6 incorporates all the recommendations of the Kern County Public Health Services Department, including a worker education program, and was clarified in the SREIR (October 2020). Potential health risks from contracting Valley Fever remain significant and unavoidable even with mitigation and public education campaigns. No further feasible mitigation has been identified to reduce the risk of contracting Valley Fever.

0061-135

The comment states that operational emissions from stationary sources should be addressed first by onsite emission reductions for each operator and then should require offsets for all emissions below or equal to the offset emission thresholds in SJVAPCD Rule 2201.

Please see Responses to Comments 0009-17 through 0009-22, and 0009-144 through 0009-147. The comment does not suggest any specific mitigation measure or provide evidence that onsite emission reductions for each operator are feasible. It is unclear how such a mitigation measure would be workable. If operators have feasible emission reductions that can be achieved onsite, MM 4.3-8 allows for direct emission reductions rather than payment of the OG-ERA mitigation fee. The collection of large amounts of fees to implement emission reduction projects by the SJVAPCD allows for an economy of scale that does not exist when individual operators make small emission reductions onsite. In addition, because MM 4.3-8 will offset criteria pollutant emissions from Project activities to net zero, further mitigation is unnecessary. See SREIR (October 2020), Vol. 1, at 4.3-164–165.

0061-136

This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. Please see Responses to Comment 0061-115 through 0061-135.

0061-137

This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response.

0061-138

The comment states that construction and operational emissions should have triggered ambient air quality modeling to assess impacts on sensitive receptors. The comment further states that such emissions can combine in the atmosphere affecting sensitive receptors.

Please see GR-1 – Beyond the Scope of the SREIR. The Court of Appeal issued a decision upholding the 2015 FEIR against all claims except for five areas: (1) mitigation of water supply impacts; (2) impacts from PM_{2.5} emissions; (3) mitigation of conversion of agricultural land; (4) noise impacts; and (5) recirculation of the Multi-Well Health Risk Assessment. The assessment of ambient air quality from Project activities and any impacts therefrom are not among the five topics required to be addressed in the SREIR. Slip Opinion, at p. 140. Thus, no modification to the SREIR on this topic is warranted. Nonetheless, a full discussion of the research describing the potential health effects of proximity to oil and gas wells has been incorporated into the Air Quality section of the SREIR (October 2020), Vol. 1, at 4.3-28–41 in order to provide full public disclosure of the Project’s potential impacts to the environment. This discussion includes a summary of numerous reports regarding potential health impacts from oil and gas operations, including those referenced in the comment. The SREIR explains the existing air quality in the Project Area, including noting that the San Joaquin Valley is nonattainment for federal standards for ozone and PM_{2.5}. See SREIR (October 2020), Vol. 1, at 4.3-4–7.

The SREIR also explains and discusses the air quality plans applicable to the Project Area in order to help reach attainment. MM 4.3-8 also requires emissions of designated criteria air pollutants to be fully offset via the OG-ERA, by funding emission reduction projects in the SJVAB, allowing the San Joaquin Valley to continue to work toward attainment of all state and federal air quality standards. Please see Responses to Comments 0008-27, 0008-59, 0009-4, 0009-17 through 0009-19, 0009-21, 0009-24, 0009-27, 0009-29, 0061-17, 0061-18, and 0061-6 through 0061-14, which explain how MM 4.3-8 works and its efficacy, and the HRAs prepare for the Project and the mitigation trigger distances created in MM 4.3-5. Although the Project’s emissions remain significant and unavoidable, emissions from Project implementation will be reduced to a level of no net increase with implementation of MM 4.3-1 through MM 4.3-4 and MM 4.3-8.

Ambient air quality modeling for the impacts of construction and operational emissions from the Project is not required for a number of reasons. With regard to construction, the SJVAPCD GAMAQI recommends that an ambient air quality analysis (i.e., air dispersion modeling) be performed when onsite emissions of any criteria pollutant from construction activities would equal or exceed any applicable threshold of significance for criteria pollutants, or 100 pounds per day of any criteria pollutant, *after implementation of all enforceable mitigation measures* (SJVAPCD 2015, pp. 93–94; emphasis added). Because MM 4.3-8 will reduce emissions from Project construction activities to net zero, no ambient air quality modeling is required. In addition, the SJVAPCD has developed the Small Project Analysis Level (SPAL) screening tool, which consists of a list of project types that involve short-term or intermittent operations for which an ambient air quality analysis (i.e., dispersion modeling) is not required.

At the time that the EIR was adopted in 2015, well drilling and workover operations were explicitly excluded from the requirement to conduct ambient air quality monitoring, no matter the drilling or workover activity or length of time. Thus, modeling for construction emissions, including all well drilling and related activities, from the Project is not required. With regard to operational emissions from permitted equipment, the SJVAPCD’s GAMAQI provides that it is reasonable for the lead agency to conclude that emissions from permitted equipment or activities located at stationary sources would not violate any air quality standard or contribute substantially to an existing or projected air quality violation (SJVAPCD 2015, p. 88). This is because the SJVAPCD’s permitting process ensures that emissions of criteria pollutants from permitted equipment and permitted activities at a stationary source are reduced or mitigated to levels below the SJVAPCD’s thresholds of significance by the use of NSR, which requires that permitted equipment include best available control technology (and that all criteria pollutant emissions be offset under SJVAPCD Rule 2201).

In addition, the GAMAQI states that ambient air quality modeling is only required if the Project’s emissions will exceed the SJVAPCD screening threshold after implementation of all enforceable mitigation measures. Because permitted emissions from the Project must be fully offset under SJVAPCD rules under MM 4.3-1, there will not be an increase in emissions from operational emissions from permitted stationary sources. Please see Responses to Comments 0008-27, 0008-59, 0009-4, 0009-17 through 0009-19, 0009-21, 0009-24, 0009-27, and 0009-29. Thus, these emissions also do not warrant ambient air quality monitoring as emissions would not increase. With respect to emissions from operations of non-permitted equipment, the SJVAPCD recommends that an ambient air quality analysis be performed when onsite emissions of any criteria pollutant from non-permitted equipment or activities (not otherwise permit exempt) would equal or exceed any applicable threshold of significance for criteria pollutants, or 100 pounds per day of any criteria pollutant, *after implementation of all enforceable mitigation measures* (SJVAPCD 2015, p. 94; emphasis added). All increases in operational emissions from non-permitted equipment or activities will be fully mitigated through implementation of MM 4.3-1 through MM 4.3-4 and MM 4.3-8. Consequently, there will not be any change in emissions from the non-permitted equipment. Therefore, dispersion modeling is not required.

As a practical matter, it is questionable whether it is even feasible to conduct ambient air quality modeling for the Project. CEQA Guidelines § 15364 (“feasible means capable of being accomplished in a successful manner within a reasonable period

of time, taking into account economic, environmental, legal, social, and technological factors”). It is not clear that ambient air quality modeling, which requires knowledge of where emission sources are situated, what emissions they are generating, and how those emissions disperse and react in the atmosphere would be impossible for a project of this size and geography. Even if such modeling were feasible, it would be completely speculative. CEQA Guidelines § 15145 (“[i]f after thorough investigation, a lead agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact”). To conduct ambient air quality modeling would require knowledge of the exact location and depth of every proposed well to be drilled throughout the Project’s 20-year lifetime. As the precise future locations of thousands of wells per year over the 20-year time span of the Project cannot be predicted beyond the 2.5 million acres of the valley, the valley ambient air is the relevant information. Even slight changes in location could greatly affect the modeling results based on topography, weather, wind, current ambient air quality, and other factors. As shown in the table creating the mitigation fees for the OG-ERA, emissions vary greatly by geology, (i.e., Subarea). See SREIR (October 2020), Vol. 2, Appendix C, at Exhibit B, Oil and Gas Emission Reduction Agreement.

Emissions also vary greatly by well depth. To conduct any kind of useful ambient air quality modeling, one would have to know the location and depth of every well and potentially also equipment proposed to be used in drilling operations. The outputs of any dispersion modeling would vary hugely based on assuming more deep wells in one location or more shallow wells in another. The potential for so many variations would render any ambient air quality modeling performed nearly useless. Under CEQA, an agency is not required to foresee the unforeseeable, but is only required to find out and disclose all that it reasonably can. CEQA Guidelines § 15144. For these reasons, in addition to ambient air quality modeling not being required under SJVAPCD guidance, it would also be speculative and likely infeasible to perform. Thus, no ambient air quality modeling is required.

0061-139

The comment states that the definition of sensitive receptors in the SREIR (October, 2020) is too narrow and should be expanded.

The definition of sensitive receptors is based on the Kern County General Plan and Title 19 Zoning Ordinance, County of Kern Guidelines for Preparing an Air Quality Assessment for use in Environmental Impact Reports and the SJVAPCD GAMAQI. See SREIR (October 2020), Vol. 1, at 4.3-46, 4.3-54, 4.3-74. The definition is actually more inclusive than the state’s definition as it includes churches, which are places of assembly that include vulnerable populations. The State of California standard, which CalGEM utilizes, does not include churches. The SJVAPCD GAMAQI defines sensitive receptors as: “People that have an increased sensitivity to air pollution or environmental contaminants. Sensitive receptor locations include schools, parks and playgrounds, day care centers, nursing homes, hospitals, and residential dwelling unit(s). The location of sensitive receptors is needed to assess toxic impacts on public health” (SJVAPCD 2015, p. 10). It is the location of the sensitive receptors that is needed to assess toxic impacts on public health (SJVAPCD 2015, p. 10). The SREIR also states that sensitive receptors include “residential communities, schools, playgrounds, childcare centers, athletic facilities, longterm health care facilities, rehabilitation centers, convalescent centers, and retirement homes.” See SREIR (October 2020), Vol. 1, at 4.3-46. CARB similarly provides that “[s]ensitive receptors are children, elderly, asmatics [sic] and others whose are at a heightened risk of negative health outcomes due to exposure to air pollution. The locations where these sensitive receptors congregate are considered sensitive receptor locations. Sensitive receptor locations may include hospitals, schools, and day care centers, and such other locations as the air district board or California Air Resources Board may determine (California Health and Safety Code § 42705.5(a)(5))” (CARB 2021).

0061-140

The comment states that the impacts of potential pollutant emissions cannot be identified or mitigated without conducting air dispersion modeling.

Please see Responses to Comment 0061-138 for a detailed explanation of why ambient air modeling is not required, feasible, nor informational. In addition, Project emissions will be reduced to net zero via MM 4.3-8 and the OG-ERA; thus, no increase in emissions from the Project in the San Joaquin Valley will occur because emissions from other sources will be reduced in order to offset the emission increases from Project activities. Please also see Response to Comments 0009-25, 0009-29, and 0009-145.

0061-141

The comment states that the SREIR (October 2020) should have, but did not, include ambient air modeling and did not provide a discussion of the effects of various criteria pollutants. Please see GR-1 – Beyond the Scope of the SREIR. As the comment notes, the SREIR addresses the potential health impacts of criteria pollutants. See SREIR (October 2020), Vol. 1, at 4.3-81,

Project Impacts. Please see Response to Comment 0061-138 for a detailed explanation of why ambient air modeling was not required. In addition, Project emissions will be reduced to net zero via MM 4.3-8 and the OG-ERA, and thus no increase in emissions from the Project in the San Joaquin Valley will occur as reductions from other sources will be achieved by the OG-ERA-funded emission reduction projects. Emissions from Project implementation will thus be reduced to a level of no net increase with implementation of MM 4.3-1 through MM 4.3-4 and MM 4.3-8. Please see Responses to Comments 0009-25, 0009-29, and 0009-145. The comment also states that the SREIR (October 2020) failed to estimate the increased pollutants relative to a baseline concentration. Please see Response to Comment 0006-148, which explains that the SREIR did not present a typical baseline under CEQA and, instead, provided a more conservative estimate of emissions by not deducting baseline emissions from total Project emissions.

0061-142

The comment states that the SREIR (October 2020) failed to define the term “large stationary source.”

Section 4.3, Noise, of the SREIR (December 2020) defines the term “large stationary source” as applicable here to mean “new and expanded cogeneration plants.” See SREIR (October 2020), Vol. 1, at 4.3-122. The comment also cites “experience in the oil, gas, refining, and other industries” to speculate that emissions from the Project’s construction and operation would exceed those from large stationary sources. This comment addresses personal experience in a variety of industries, which is not the subject of the SREIR (October 2020), and thus does not state a specific concern related to the adequacy of the SREIR. Regardless of the comparison to other types of projects, Project emissions are fully analyzed and mitigated to the extent feasible. No detailed response to this comment is required.

0061-143

The comment states that the SREIR (October 2020) should have included ambient air quality modeling due to the magnitude of the emissions projected to occur from Project implementation, the ambient air quality in the area, and the presence of sensitive receptors.

Please see GR-1 – Beyond the Scope of this SREIR. Please see Response to Comment 0061-138 for a detailed explanation of why ambient air quality modeling was not required. The comment does not suggest what such modeling would expose or how that modeling would change the outcome of the SREIR. Even if the ambient air modeling showed increased concentrations across the Project Area, the result would be mitigation measures in place to reduce emissions as feasible. This is exactly what MM 4.3-8 requires. All increases in Project emissions will be fully mitigated through implementation of MM 4.3-1 through MM 4.3-4 and MM 4.3-8. See Response to Comments 0009-25, 0009-4, 0009-17 through 0009-19, 0009-21, 0009-24, 0009-27, and 009-29 discussing the mitigation of Project emissions. The SREIR also addressed and discussed the presence of sensitive receptors in the Sensitive Receptor Community Analysis. See SREIR (October 2020), Vol. 1, at Appendix F, Sensitive Receptor Community Analysis (October 2020); SREIR (October 2020), Vol. 1, at 4.3-46, 4.3-81, 4.3-122. Further, any health risk effects from the Project are address in the multiple HRAs prepared for the Project and in MM 4.3-5. See SREIR (October 2020), Vol. 1, at 4.3-143–160.

0061-144

The comment states that the SREIR did not conduct ambient air modeling and thus, the SREIR fails as an informational document under CEQA based on the decision in *Sierra Club v. County of Fresno* (2018) 226 Cal.App.4th 704 (*Friant Ranch*).

The California Supreme Court issued its decision in *Friant Ranch* in December of 2018, a full three years after the 2015 FEIR was certified. The case reviewed the long-term, regional air quality analysis contained in the EIR for the proposed Friant Ranch development. The court ruled that the air quality analysis failed to adequately disclose the nature and magnitude of long-term air quality impacts from emissions of criteria pollutants and precursors “in sufficient detail to enable those who did not participate in its preparation to understand and consider meaningfully the issues the proposed project raises.” The court held that CEQA requires an EIR to either (1) make a “reasonable effort” to substantively connect the estimated amount of any given air pollutants a project will produce and the health effects associated with that pollutant, or (2) explain why such an analysis is infeasible. *Friant Ranch*, 226 Cal.App.4th at 1165-66. *Friant Ranch* was decided years *after* the 2015 EIR and the Court of Appeal’s decision in *King & Gardiner Farms, LLC v. County of Kern* (2020) Case No. F077656, Slip Opinion, (Cal. Ct. App. 5th Dist. Feb. 25, 2020). This potential impact was not challenged in that action. Thus, the Modified Judgment resulting from that action is *res judicata*, and the question of ambient air quality modeling is beyond the scope of the SREIR (October 2020). Please see GR-1 – Beyond the Scope of the SREIR.

This potential impact was already known and could have been known at the time of the 2015 FEIR. These issues and the *Friant Ranch* opinion were not required to be addressed in the SREIR because they do not constitute “changed circumstances” or

“new information” requiring supplemental environmental review under CEQA. Please see Response to Comments 0009-54 (explaining the standard for requiring supplemental environmental review under CEQA); see also Cal. Pub. Res. Code § 21166 and CEQA Guidelines § 15162. The California Supreme Court has explained that the provisions governing supplemental CEQA review “are designed to balance CEQA’s central purpose of promoting consideration of the environmental consequences of public decisions with interests in finality and efficiency.” *Friends of College of San Mateo Gardens v. San Mateo County Community College Dist.* (2016) 1 Cal.5th 937, 949. The comment does not raise either substantial changes in circumstances or new information requiring supplemental analysis under Cal. Pub. Res. Code § 21166 and CEQA Guidelines § 15162. The *Friant Ranch* decision is not “new information” requiring supplemental review under the CEQA Guidelines and thus does not mandate reopening an issue which could have been, and was not, challenged when the 2015 FEIR was initially adopted. *Concerned Dublin Citizens v. City of Dublin* (2013) 214 Cal. App. 4th 1301, 1319 (new air quality guidelines did not constitute new information).

Response to Comment 00061-138 also explains why such an analysis is (1) not required for this Project, (2) not feasible or possible, and (3) not useful or reliable in any way due to the assumptions required to undertake ambient air quality modeling of Project emissions. Correlating the Project’s criteria air pollutant emissions to specific health impacts is not possible because there is no feasible or established scientific method to perform such analysis. This conclusion is supported by both the SJVAPCD and the SCAQMD, both of which have determined that this type of analysis is speculative and infeasible. See Brief for SJVAPCD as Amicus Curiae, *Sierra Club v. County of Fresno*, 6 Cal.5th 502 (2018), available at <https://www.courts.ca.gov/documents/7-s219783-ac-san-joaquin-valley-unified-air-pollution-control-dist-041315.pdf>. Writing as amicus curiae in *Friant Ranch*, the SJVAPCD explained that:

The health impact of a particular criteria pollutant is analyzed on a regional and not a facility level based on how close the area is to complying with (attaining) the NAAQS [National Ambient Air Quality Standards]. Accordingly, while the type of individual facility/health impact analysis that the Court of Appeal has required is a customary practice for TACs, it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task.

Instead, the SJVAPCD explained that it assesses a project’s potential to exceed the ambient air quality standards by evaluating the project’s compliance with district thresholds of significance, which are measured in mass emissions. The SJVAPCD explained that its thresholds are based on factual, scientific data and have been set at a level that ensures that the ambient air quality standards will not be exceeded, taking into consideration all cumulative emission sources. The SJVAPCD explained that attempting to connect criteria pollutant emissions to localized health impacts will “not yield reliable information because currently available modeling tools are not well suited for this task.” Available models are only equipped to model the impact of all emissions sources on an air basin-wide or regional basis, not on a project-level basis, and “[r]unning the photochemical grid model used for predicting ozone attainment with emissions solely from one project would thus not be likely to yield valid information given the relative scale involved.” This inability to “accurately ascertain local increases in concentration” of mass emissions and then to further link emissions with health effects is particularly true for ozone and its precursors NO_x, ROG, and VOCs. Ozone is not directly emitted into the air, but is instead formed as ozone precursors undergo complex chemical reactions through sunlight exposure. Given the complex nature of this process, and the fact that ozone can be transported by wind over long distances, “a specific tonnage amount of NO_x or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area.” Thus, the photochemical analysis for ozone is done on a regional scale and it is inappropriate to analyze ozone impacts at a local or project-level basis because a localized analysis would at most be speculative, and at worst be misleading. Speculative analysis is not required by CEQA. CEQA Guidelines § 15145.

The SJVAPCD also explained that the disconnect between the mass amount of precursor pollutants and the concentration of ozone or PM formed in a particular area is especially important to understand in considering potential health effects because it is the concentration, not the mass amount, that causes health effects. The SJVAPCD explained that even if a model were developed that could accurately assess local increases in concentrations of pollutants like ozone and PM, it would still be “impossible, using today’s models, to correlate that increase in concentration to a specific health impact.” The SJVAPCD stated that even a project with criteria pollutant emissions above its CEQA thresholds does not necessarily cause localized human health impacts as, even with relatively high levels of emissions, the SJVAPCD cannot determine “whether and to what extent emissions from an individual project directly impact human health in a particular area.”

The SCAQMD made similar points as amicus curiae in *Sierra Club*. The SCAQMD reiterated that “an agency should not be required to perform analyses that do not produce reliable or meaningful results.” See Brief for SCAQMD as Amicus Curiae, *Sierra Club v. County of Fresno*, 6 Cal.5th 502 (2018), available at <https://www.courts.ca.gov/documents/9-s219783-ac-south-coast-air-quality-mgt-dist-041315.pdf>. The SCAQMD agreed that it is very difficult to quantify health impacts with regard to ozone, opining that the only possible means of successfully doing so is for a project so large that emissions would

essentially amount to all regional increases. With regard to PM, the SCAQMD noted that CARB has created a methodology to predict expected mortality from large amounts of PM_{2.5}. However, the primary author of the methodology has reported that it “may yield unreliable results due to various uncertainties.” Further, CARB staff have been directed to reassess and improve the methodology, which “also counsels against setting any hard-and-fast rule” about conducting this type of analysis.

Friant Ranch addressed ozone formation as a result of ROG/VOC and NO_x emissions. The formation of ozone and PM in the atmosphere involves complex chemical and physical interactions of multiple pollutants from various sources. This complexity makes it difficult to model ambient air quality concentration based on project emissions. Ozone is not emitted directly into the air but rather is created by chemical reactions between NO_x and VOCs/ROGs. Thus, ozone is controlled by both NO_x and ROG/VOC emissions, but the SJVPACD has found that ozone concentrations tend to be restricted by the availability of NO_x, rather than ROG, which is abundant in the SJVAB. See Brief for SJVPACD as Amicus Curiae, *Sierra Club v. County of Fresno*, 6 Cal.5th 502 (2018). For this reason, NO_x matters more for the formation of ozone in the SJVAB than ROG. The complexity of these interacting cycles of pollutants means that incremental decreases in precursor pollutants may not result in proportional decreases in the pollutants that the precursors form. How and where the precursors form may change depending on other available pollutants in the area. Thus, there is not a direct relationship between mass levels of criteria pollutants and ambient air quality concentrations. For example, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region. See Brief for SJVPACD as Amicus Curiae, *Sierra Club v. County of Fresno*, 6 Cal.5th 502 (2018). Thus, even if a project’s emissions are over significance thresholds, that does not make it possible to easily determine the concentration of ozone or PM that will be created by those emissions on a particular day or month, or what specific health impacts will occur. This disconnect between tonnage of precursor pollutants and concentration of ozone or PM is important because it is not the tonnage that creates the health effect but the concentration.

Variability in emission source operations and meteorology also create uncertainty in modeled ozone concentrations to which a sensitive receptor may be exposed to. This is especially true for projects where emissions are not generated by a single point source but rather from multiple mobile sources, area sources, and point sources, as present in the Project Area. In addition, regional transport of ozone from one air basin to another can impact ambient ozone concentrations. Secondary PM can also develop in the atmosphere via complex chemical reactions between sulfur oxides and NO_x. However, small particles of PM can be transported long distances by wind, and thus the mass amount of PM-forming precursor emissions in one area does not necessarily result in an equivalent concentration of secondary PM in that area. See SREIR (October 2020), Vol 1, at 4.3-14. Because it is difficult, if not impossible, to determine the relationship between tonnage and concentration, it is even more difficult to take the second step to how tonnage relates to health effects.

While it is common to correlate TACs with health effects, it is not common to do so with criteria pollutants. Instead, criteria pollutant emissions are regulated through the NAAQS and California Ambient Air Quality Standards (CAAQS), as those levels of criteria pollutants have been determined not to be detrimental to human health. These human health impacts are considered at a regional level, not a facility or individual project level like TACs. This is because, as both SJVPACD and SCAQMD have explained, computer models used to simulate and predict air quality for ozone or PM are based on regional inputs, such as basin-wide inventories of pollutants, the atmospheric chemistry, and meteorology of the San Joaquin Valley. An analysis correlating the criteria air pollutant emissions associated with project-specific localized health impacts thus does not yield reliable information because currently available modeling tools (i.e., basin-wide photochemical modeling) are not well suited for this task due to the complexity and extensive data inputs needs that would be required. For these reasons, at this time no available modeling tools have been endorsed by any expert agency or otherwise shown to provide a reliable and meaningful analysis to correlate increases in mass totals or concentrations of criteria pollutant emissions from an individual project to specific health effects, or to estimate additional pollutant nonattainment days relative to the NAAQS and CAAQS due to a single project

0061-145

The comment states that the SREIR (October 2020) should have included ambient air modeling based on the cumulative effects of construction of wells and operation of wells. Please see GR-1 – Beyond the Scope of the SREIR.

Please see Response to Comment 0061-138 for a detailed explanation of why ambient air modeling was not required. The SREIR (October 2020) did analyze Project cumulative emissions in accordance with Kern County Air Quality Assessment Guidelines. See SREIR (October 2020), Vol. 1, at 4.3-160–161, Cumulative Setting, Impacts, and Mitigation Measures. Although the Project’s emissions remain significant and unavoidable, emissions from Project implementation will be reduced to a level of no net increase with implementation of MM 4.3-1 through MM 4.3-4 and MM 4.3-8. Please see Responses to Comments 0008-27, 0008-59, 0009-4, 0009-17 through 0009-19, 0009-21, 0009-24, 0009-27, and 0009-29.

0061-146

The comment states that the SREIR (October 2020) should have, but did not, include ambient air modeling.

Please see GR-1 – Beyond the Scope of the SRERI. Please see Response to Comment 0061-138 for a detailed explanation of why ambient air modeling was not required. The statement that modeling of emissions is feasible and “routinely conducted” in CEQA documents ignores the unique circumstance of this Project detailed in Response to Comment 0061-138. As explained in Response to Comment 006-144, the decision in Friant Ranch does not warrant reopening this issue.

0061-147

The comment states that the SREIR (October 2020) should have, but did not, include ambient air modeling.

Please see GR-1 – Beyond the Scope of the SREIR. Please see Response to Comment 0061-138 for a detailed explanation of why ambient air modeling was not required. The comment also states that the use of fees paid to the SJVAPCD as offsets cannot be used to mitigate air quality impacts unless they are at the point of impact. The use of offsets under MM 4.3-1 and Rule 2201 was never challenged. Please see Responses to Comments 0006-13, 0061-104, 0061-120, 0061-122, and 0061-180 as to the validity of offsets under Rule 2201 as mitigation for Project impacts. The comment’s assertions about the use of offsets in CEQA is incorrect, and the comment provides no support for the assertion. The Court of Appeal found that emission reduction projects implemented with mitigation fee monies from the OG-ERA adopted under MM 4.3-8 were valid and enforceable CEQA mitigation despite the fact that emission reduction projects will sometimes be implemented outside of Kern County and the fact that there may be a gap between emitting activities and implementation of emission reduction projects. Slip Opinion, at p. 61–67. The court also stated that the SREIR was not required to identify potential emission reduction projects to be implemented under the OG-ERA or describe the availability of offsetting projects. Slip Opinion, at p. 61–67. Many other CEQA cases have upheld fee mitigation programs that provide for offsite mitigation that occurs after impacts begin. See, e.g., *Friends of Lagoon Valley*, 154 Cal.App.4th at 818 (absence of specific time schedule for completing road improvements with traffic mitigation fees was not fatal). Please also see Responses to Comments 0009-17 through 0009-21, 0009-24, 0006-12, 0061-180, and 0061-184.

0061-148

The comment states that the SREIR (October 2020) estimated total operational emissions in 2012 and in 2035, but failed to use this information to estimate the change in emissions relative to the 2012 baseline and thus fails as an informational document under CEQA.

The 2015 FEIR and the SREIR take a conservative approach with respect to emissions from drilling and operating future wells by using 2012 oil and gas drilling and operations activity levels as the baseline for measuring impacts. Although the total number of active wells is expected to increase over time from the 2012 baseline activities, CEQA would have allowed the SREIR to subtract baseline activity levels from the total number of projected wells to determine the incremental increase in emissions attributed to the Project. The 2015 FEIR and the SREIR do not consider that increment; instead, the analysis treats every future well drilled and operated as a new well for which emissions will be mitigated via the OG-ERA. In other words, emissions from well drilling and operations which would otherwise have been subtracted as baseline activities are considered new impacts resulting from the Project, and will be mitigated accordingly. See SREIR (October 2020), Vol. 1, at 4.3-122. This goes further than CEQA requires and is a particularly conservative approach considering that oil well drilling and operation in the County is ongoing and has occurred for many years. Please also see Responses to Comment 0009-17, 000 61-9 and 00061-12.

0061-149

The comment states that the SREIR failed to conduct air quality modeling of operational emissions.

Please see GR-1. Please see Response to Comment 0061-138 for a detailed explanation of why ambient air modeling was not required. All increases in operational emissions will be fully mitigated through implementation of MM 4.3-1 through MM 4.3-4 and MM 4.3-8. Please also see Responses to Comments 0009-25, 000 9-4, 0009-17 through 0009-19, 0009-21, 0009-24, 0009-27, and 0009-29.

0061-150

The comment includes a table summarizing the author’s own calculation of the net increase in the Project’s operational emissions in 2035 relative to the 2012 baseline, as compared to the SJVAPCD thresholds of significance.

The table demonstrates that MM 4.3-8 and the OG-ERA will result in over-mitigation since the SREIR did not credit the emission reductions from baseline over time as the table in this comment does. Please see Responses to Comments 0061-148 and 0009-145. The SREIR adequately analyzed and disclosed the potential impacts from Project emissions and compared them to the SJVAPCD thresholds. Failing to take credit for baseline emissions does not make the analysis in the SREIR inadequate, it only makes it conservative. The comment also states that the SREIR based its calculations on the wrong significance thresholds—construction rather than operation. This comment appears to be a typographical error since Table 4.3-26 in the SREIR does not cite construction emissions and includes the same operational threshold referenced in the comment's table. See SREIR (October 2020), Vol. 1, Table 4.3-26, at 4.3-121.

61-151

The comment states that the SREIR failed to determine whether the Project will comply with federal and/or state ambient air quality standards on ozone, PM₁₀, and PM_{2.5} established to protect public health—in particular, section 109(b)(1) of the Clean Air Act.

Please see GR-1 – Beyond the Scope of the SREIR. Impact 4.3-1 determines whether the Project will conflict with or obstruct implementation of the applicable air quality plan (SJVAPCD) and shows that the Project will not delay attainment. See SREIR (October 2020), Vol. 1, at 4.3-81–90. Table 4.3-9 provides background baseline information for the Project Area and relates to the analysis in Impact 4.3-1 regarding whether the Project would conflict with or obstruct implementation of the applicable air quality plan. The comment also asserts that the SREIR failed to disclose that the air quality in the area where the Project is located is one of the worst in the United States. This is incorrect. The SREIR explains that the extent of air pollution is from significant anthropogenic (human-related) activities in the area and lists the specific environmental circumstances in the SJVAB that contribute to the heightened air pollution. See SREIR (October 2020), Vol. 1, Table 4.3-1, at 4.3-4.

0061-152

The comment states a fact, not a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0061-153

The comment states that ROGs are a subset of VOCs and the terms are interchangeable.

The SREIR similarly explains that VOCs are similar to ROGs in that they include all organic gases except those exempted by federal law, as the comment states. The SREIR goes on to state that the list of compounds excluded from the definition of VOC is provided by the SJVAPCD in SJVAPCD Rule 1020, section 3.53. See SREIR (October 2020), Vol. 1, at 4.3-18. The SREIR also cites the Kern County California Environmental Quality Act Implementation Document (June 2004), which states that ROGs are also referred to as VOCs. See SREIR (October 2020), Vol. 1, Table 4.3-21, at 4.3-114.

0061-154

The comment states that Project construction and operational emissions will exceed the NO_x significance threshold and the VOC significance threshold.

This comment is a true statement of fact from the SREIR; however, all increases in operational emissions will be fully mitigated through implementation of MM 4.3-1 through MM 4.3-4 and MM 4.3-8. See Responses to Comments 0009-25, 0009-4, 0009-17 through 0009-19, 0009-21, 0009-24, 0009-27, and 0009-29.

0061-155

The comment states that MM 4.3-8 and the OG-ERA are not valid mitigation unless emission reduction projects or offsets mitigate impacts at the same time and place as the Project's impacts. The comment also asserts that without air quality modeling, it is impossible to select offsets or the emission reduction projects funded by the OG-ERA that will mitigate the impacts where the impacts occur.

Please see GR-1 – Beyond the Scope of the SREIR. The use of offsets under MM 4.3-1 and SJVAPCD Rule 2201 was never challenged. The comment is correct that some of the NO_x and VOC emissions would be offset under SJVAPCD Rule 2201 and some emissions will be offset via the air mitigation fee in the OG-ERA in MM 4.3-8. These are valid CEQA mitigation measures as emission reductions do not have to occur at the same time and place as the Project's impacts. Please see Responses to Comments 0061-180 through 0061-184. The OG-ERA establishes a mitigation fee program whereby oil and gas permit applicants that chose not to undertake direct emission reductions may instead pay an air emission mitigation fee, the proceeds of which are transferred by the County to the SJVAPCD to fund emission reduction projects approved by the

SJVAPCD. Please see Responses to Comments 0009-17 through 0009-29, 0061-7, and 0061-9, which explain that an ERA is valid mitigation under CEQA and thus reductions do not have to occur in the same place and at the same time as the Project emissions.

Nothing in CEQA or CEQA caselaw requires mitigation fee programs to implement mitigation contemporaneously with project activities. Courts have held that even mitigation with no specific schedule for implementation is sufficient. See *Friends of Lagoon Valley*, 154 Cal.App.4th at 818 (absence of specific time schedule for completing road improvements with traffic mitigation fees was not fatal). See SREIR (October 2020), Vol. 1, at 4.3-142–143. Nothing in CEQA requires a mitigation fee program to show contemporaneous mitigation with fee collection or with emitting activities. Improvements from these types of fee-based mitigation programs are never “in place” until fees sufficient for their construction have accumulated from sometimes many projects or until mitigation land has been identified, and these improvements are certainly not in place before impacts occur from the first contributing projects. Please see Response to Comment 0009-17, which explains the OG-ERA, its purpose, and its process length. Please see Response to Comment 0061-138 for a detailed explanation of why ambient air modeling was not required.

0061-156

This comment states that the SREIR failed to disclose or estimate the public health impacts from increases in ambient air quality concentrations and other pollutants.

Please see GR-1 – Beyond the Scope of the SREIR. Please see Response to Comment 0061-138 for a detailed explanation of why ambient air modeling is not required. The SREIR discusses the public health impacts from ozone at length and notes that permitted source emissions would be consistent with the SJVAPCD’s adopted regulatory program to attain state and federal ozone and PM standards. See SREIR (October 2020), Vol. 1, at 4.3-11, 4.3-88. Please also see Response to Comment 0061-144 for a full discussion of why public health impacts from an increase in ambient ozone concentrations from Project emissions of ozone precursors is infeasible.

0061-157

The comment states that the SREIR did not evaluate the impact of ground-level ozone on nearby sensitive receptors.

See GR-1 – Beyond the Scope of the SREIR. The health impact analysis in Section 4.3, Air Quality, addresses the impacts of TACs on health risk and sensitive receptors as TACs have a much more detrimental impact on health than criteria pollutants. Impact 4.3-3 in the SREIR addresses potential health risk from Project activities. See SREIR (October 2020), Vol. 1, at 4.3-143–160. The multiple HRAs prepared for the Project indicate that the mitigation trigger distances in MM 4.3-5 will be sufficient to reduce health risk from the Project to below the SJVAPCD thresholds. These HRAs assessed the pollutants that would be most likely to have detrimental health impacts on sensitive populations. See SREIR (October 2020), Vol. 1, Appendix B and B-1. The SREIR also includes a summary of numerous reports regarding the potential health impacts from oil and gas operations, including those referenced in the comment. See SREIR (October 2020), Vol. 1, at 4.3-28–41. Please see GR-6 – Health Risk Assessments and Responses to Comments 0008-27, 0008-59, 0061-17, and 0061-18 for an explanation of the HRAs.

0061-158

The comment states that Project VOC emissions will aggravate existing violations of ambient air quality on ozone in surrounding communities, tangentially suggesting that air quality modeling is required to calculate the public health impacts from ozone.

See GR-1 – Beyond the Scope of the SREIR. Please see Response to Comment 0061-138 for a detailed explanation of why ambient air modeling is not required. Please also see Response to Comment 0061-144 for a full discussion of why public health impacts from an increase in ambient ozone concentrations from Project emissions of ozone precursors is infeasible. The SREIR analyzed ozone concentration and monitoring, noting that ozone continues to be above state and federal standards in many places in Kern County. Please see Response to Comment 0009-4. As provided in the SREIR, the SJVAPCD requires all local governments within its eight-county jurisdiction to adopt resolutions as part of the Ozone Attainment Demonstration Plan that must be approved by the EPA. The resolutions describe the reasonably available control measures that each jurisdiction will implement to reduce ozone-causing emissions into the air from transportation sources. See SREIR (October 2020), Vol. 1, at 4.3-67, 4.3-82. The SREIR also addressed ozone emissions with regard to the Project’s consistency with applicable air quality plans, finding that the emissions of ozone precursors would exceed SJVAPCD thresholds. However, the reduction of emissions of ozone precursors from the Project to a level of no net increase under MM 4.3-8 would eliminate any increase in ozone due to Project activities. See SREIR (October 2020), Vol. 1, at 4.3-67, 4.3-82.

0061-159

This comment again asserts that the SREIR (October 2020) failed to conduct ambient air quality monitoring with regard to ozone and instead proposed mitigation measures to reduce emissions of specified criteria pollutants to net zero. Please see GR-1 –Beyond the Scope of the SREIR.

Please see Response to Comment 0061-138 for a detailed explanation of why ambient air modeling was not required. Please also see Response to Comment 0061-144 for a full discussion of why public health impacts from an increase in ambient ozone concentrations from Project emissions of ozone precursors is infeasible. The SREIR analyzed the public health impacts of ozone and mitigates any potential impacts. All increases in operational emissions will be fully mitigated through implementation of MM 4.3-1 through MM 4.3-4 and MM 4.3-8. See Responses to Comments 0009-25, 0009-4, 0009-17 through 0009-30, and 0061-155 for further information, including a discussion of the effectiveness of MM 4.3-8. The study referenced in this comment does not suggest that new mitigation, beyond the mitigation measures described in Section 4.3, Air Quality, of the SREIR (October 2020) is necessary to mitigate potential health impacts from the Project.

0061-160

The comment notes the high rate of ozone pollution in the SJVAB where the Project is located and lists groups of people that are especially vulnerable to the effects of ozone pollution.

The comment contains mostly factual information, but does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response.

0061-161

The comment states that studies have documented the serious health impacts of ozone, and thus, ozone should be analyzed and fully mitigated.

Please see Response to Comment 0061-138 for a detailed explanation of why ambient air modeling was not required. Please also see Response to Comment 0061-144 for a full discussion of why public health impacts from an increase in ambient ozone concentrations from Project emissions of ozone precursors is infeasible. The SREIR (October 2020) contains a detailed analysis of the emissions of ozone precursors from Project activities and determined that the emissions from these precursors would exceed SJVAPCD significance thresholds. See SREIR (October 2020), Vol. 1, 4.3-111. However, all Project emissions from specified criteria pollutants would be required to be fully offset pursuant to MM 4.3-1 (requiring offsets pursuant to SJVAPCD Rule 2201) and MM 4.3-8 (creating the OG-ERA). Therefore, there would be no net increase in these emissions. See SREIR (October 2020), Vol. 1, at 4.3-111, 4.3-164–166.

0061-162

The comment states that ozone causes harm to birds and plants, including crops. The comment states that ozone is a powerful oxidant that damage birds' lungs and that ozone indirectly impacts birds via changes to habitat conditions, food supplies, and/or species interactions.

This comment falls outside the scope of the limited CEQA review required by the Court of Appeal's decision. Please see GR-1 – Beyond the Scope of the SREIR. The comment makes general statements concerning impacts to birds and plants, but does not identify significant new information showing that the Project would have new or substantially more severe impacts that would require analysis in the SREIR. The 2015 FEIR identified such effects, noting that ozone is an oxidant that can kill and damage living cells, such as human cells and those of other organisms, and that ozone damages natural ecosystems, such as forests and foothill communities, and agricultural crops. See SREIR (October 2020), Vol. 1, at 4.3-11–12, carried forward from the 2015 FEIR, Vol. 1, at 4.3-10–11. Secondary NAAQS provide public welfare protection, including protection against harm to animals. See SREIR (October 2020), Vol. 1, at 4.3-4. Air quality mitigation measures, including MMs 4.3-1, 4.3-3, 4.3-4, and 4.3-8, will mitigate impacts, including impacts from exceedance of the secondary NAAQS for ozone, by reducing emissions of ozone precursors. The Biological Resources section of the 2015 FREIR acknowledges that "[o]il and gas activities could also indirectly affect special status plants and wildlife by generating dust, emissions, noise, light, and unintentional spills or discharges..." and indicates that "[i]mpacts related to dust, emissions, light, noise and accidental spills and hazards are discussed in Sections 4.1, Aesthetic and Visual Resources; 4.3, Air Quality; and 4.8, Hazards and Hazardous Materials/Public Health Risks of this DEIR." See SREIR (October 2020), Vol. 3, at 4.4-174.

0061-163

The comment states that elevated ozone has significant impacts on plants by damaging leaves, reducing productivity, increasing disease susceptibility, and affecting ecological communities and interactions.

This comment falls outside the scope of the limited CEQA review required by the Court of Appeal's decision. Please see GR-1 – Beyond the Scope of the SREIR. The comment makes general statements concerning impacts to plants but does not identify significant new information showing that the Project would have new or substantially more severe impacts that would require analysis in the SREIR. The 2015 FEIR identified such effects, noting that ozone damages natural ecosystems, such as forests and foothill communities; agricultural crops. See SREIR (October 2020), Vol. 1, at 4.3-11–12, carried forward from the 2015 FEIR, Vol. 1, at 4.3-10–11. The secondary NAAQS for ozone provides public welfare protection, including protection against harm to crops and vegetation. See SREIR (October 2020), Vol. 1, at 4.3-4. Air quality mitigation measures, including MMs 4.3-1, 4.3-3, 4.3-4, and 4.3-8, will mitigate impacts, including impacts from exceedance of the secondary NAAQS for ozone, by reducing emissions of ozone precursors. The Biological Resources section of the 2015 FEIR acknowledges that “[o]il and gas activities could also indirectly affect special status plants and wildlife by generating dust, emissions, noise, light, and unintentional spills or discharges...” and indicates that “[i]mpacts related to dust, emissions, light, noise and accidental spills and hazards are discussed in Sections 4.1, Aesthetic and Visual Resources; 4.3, Air Quality; and 4.8, Hazards and Hazardous Materials/Public Health Risks of this DEIR.” See SREIR (October 2020), Vol. 3, at 4.4-174.

0061-164

The comment refers to previous comments regarding ozone precursor impacts on biological resources.

See Responses to Comments 0061-162 and 0061-163.

0061-165

The comment states that the SREIR (October 2020) failed to disclose the public health impacts from increases in ambient concentrations of PM_{2.5} and PM₁₀ due to increases in Project emissions.

The comment is correct that the SREIR finds that the Project will generate significant emissions of PM₁₀, including PM_{2.5}, at both a project and cumulative level. See SREIR (October 2020), Vol. 1, at 4.3-93–142, 164–166. The SREIR thus requires feasible mitigation via MM 4.3-1 through MM 4.3-4 and MM 4.3-8, which will reduce emissions of these criteria pollutants to net zero. See SREIR (October 2020), Vol. 1, at 4.3-90–92, 4.3-164–166. However, even with implementation of this mitigation, the SREIR finds this impact significant and unavoidable at both the project and cumulative levels. The comment also implies that air quality modeling would be necessary to determine the mitigation required. Please see Response to Comment 0061-138 for a detailed explanation of why ambient air modeling was not required. Please also see Response to Comment 0061-144 for a full discussion of why public health impacts from an increase in ambient PM concentrations from Project emissions is infeasible.

0061-166

This comment states facts and data regarding the pollution levels in Kern County and the nearby area. The SREIR disclosed similar baseline information in the air quality analysis.

See SREIR (October 2020), Vol. 1, at 4.3-164–165. Table 4.3-9 provides background baseline information for the Project Area. The SREIR also explains that the extent of air pollution is from significant anthropogenic (human-related) activities in the area and lists the specific environmental circumstances in the SJVAB that contribute to the heightened air pollution. See SREIR (October 2020), Vol. 1, Table 4.3-1, at 4.3-4. The comment does not raise a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response.

0061-167

The comment is a summary comment stating that the SREIR (October 2020) should have, but did not, include ambient air modeling.

Please see GR-1 – Beyond the Scope of the SREIR. Please see Response to Comment 0061-138 for a detailed explanation of why ambient air modeling was not required. Please also see Response to Comment 0061-144.

0061-168

The comment states that the OG-ERA is used to mitigate significant construction and operational impacts, but that this mitigation is not valid because it must occur at the location where the impact occurs. The comment also asserts that the location of the impact(s) can only be determined using air quality monitoring.

Please see GR-1 – Beyond the Scope of the SREIR. Please see Response to Comment 0061-138 for a detailed explanation of why ambient air modeling was not required. Please see Responses to Comments 0009-17, 0061-180, and 0061-155, which explain that mitigation need not occur at the location where the impacts occur. Offsite mitigation is acceptable under CEQA. See, e.g., *Friends of Lagoon Valley*, 154 Cal.App.4th at 818 (absence of specific time schedule for completing road improvements with traffic mitigation fees was not fatal). Please also see Response to Comment 0061-144.

0061-169

The comment states that the future nature of specifications of emission reduction projects implemented under the OG-ERA prevents the public from assessing whether these projects will reduce the impacts of air pollution and prevents them from reviewing these projects at the reviewing public's locations.

Please see Responses to Comments 0061-147, 0061-155, 0061-168, and 0061-180.

0061-170

The comment states that the SREIR, in addressing emissions necessary to be offset under the OG-ERA, combines PM_{2.5} and PM₁₀ and just address this as "PM" and states that the two should be tracked separately.

While it is possible to speciate PM_{2.5} and PM₁₀, as evidenced by Table 4.3-EE in the SREIR (October 2020), Vol. 1, at 4.3-140, that does not mean that CEQA requires a fee-based mitigation measure for air quality to track emission reductions by pollutant to be valid. The SREIR and past implementation of the OG-ERA demonstrate that PM_{2.5} is being reduced in sufficient quantities compared to its percentage of total Project emissions and that likely future emission reduction projects will overwhelmingly reduce PM_{2.5} as compared to PM_{2.5-10}. See SREIR (October 2020), Vol. 1, at 4.3-133–142. It is also true that segregating and tracking PM_{2.5} separately from PM₁₀ is more difficult than separately tracking pollutants that do not overlap in the way that PM_{2.5} and PM₁₀ do (such as NO_x and ROG). Table 4.3-EE is an example of likely average speciation between general categories of potential emission reduction projects, such as replacing internal combustion engines. However, to speciate PM from specific projects would require a more detailed and specific analysis than provided in Table 4.3-EE. Addressing PM_{2.5} and PM₁₀ jointly is also the approach that the SJVAPCD has taken in both its attainment plans and state implementation plans, and the approach it has taken in other VERAs and its ISR. As the expert agency with responsibility for air quality in the Project Area, the SJVAPCD can be relied upon to implement the OG-ERA in a way that is legally valid and adequate under CEQA. Please see Responses to Comment 0009-28 and 0009-148.

0061-171

The comment states that, since MM 4.3-8 and the OG-ERA do not require mitigation at the time of drilling, there is no basis to conclude that MM 4.3-8 and the OG-ERA would mitigate ambient air quality impacts.

This is incorrect, and the comment provides no support for the assertion. Please see Responses to Comments 0009-17 through 0009-20, 0061-147, 0061-155, 0061-168, 0061-180, and 0061-184.

0061-172

The comment states that the SREIR failed to propose adequate mitigation because the Project emissions after implementing MM 4.3-8 and the OG-ERA are still considered significant and unavoidable.

The comment is correct in that that the Project emissions are still considered significant and unavoidable, based on the lack of certainty in the amount of ROG reductions. However all feasible and reasonable mitigation has been required to reduce criteria pollutants as close to "no net increase" as scientifically possible. As the SREIR states, using a VERA to mitigate project emissions has been found legally sufficient in *Center for Biological Diversity et al. v. Kern County*, Fifth Appellate District, Case No. F061908. The comment also states that the mitigations fail because they do not occur at the same place and time as the emissions to be mitigated. See SREIR (October 2020), Vol. 1, at 4.3-133–142. Please also see Responses to Comments 0009-17 through 0009-20, and 00 61-169.

0061-173

The comment states that the SREIR failed to explain why correlation of a project's air quality impacts with potential human health impacts is infeasible, as required by *Friant Ranch*.

Please see Responses to Comments 0061-138 and 0061-144, and GR-1 – Beyond the Scope of the SREIR. The comment also does not assert that the outcomes of any ambient air modeling would result in a different outcome or mitigation because the

Project is already mitigated to net zero emissions through implementation of MM 4.3-1 through MM 4.3-4 and MM 4.3-8. For a discussion of MM 4.3-8 and the OG-ERA, please see Responses to Comments 0009-25, 0009-4, 0009-17 through 0009-19, 0009-21, 0009-24, 0009-27, and 0009-29.

0061-174

The comment states that the SREIR (October 2020) should have, but did not, include ambient air modeling. Please see GR-1 – Beyond the Scope of the SREIR and Responses to Comments 0061-138 and 0061-144.

0061-175

The comment states that, based on *Friant Ranch*, the SREIR should have included ambient air modeling and without it, the public will not be able to translate the emissions numbers in Tables 1 and 2.

Please see GR-1 – Beyond the Scope of the SREIR and Responses to Comments 0061-138 and 0061-144.

0061-176

The comment states that, based on *Friant Ranch*, the SREIR failed to explain how bare emissions numbers translate to or create potential adverse health impacts.

Please see GR-1 – Beyond the Scope of the SREIR and Responses to Comments 0061-138 and 0061-144.

0061-177

The comment states that the SREIR does not quantify ambient concentrations of ozone that emissions from the Project will create.

Please see GR-1 – Beyond the Scope of the SREIR and Responses to Comments 0061-138 and 0061-144.

0061-178

The comment states that the SREIR makes it impossible for the public to translate the emission numbers into health impacts at their locations because ambient concentrations corresponding to the emissions are not disclosed. The comment states the SREIR failed to translate these emissions into ambient concentrations.

Please see GR-1 – Beyond the Scope of the SREIR and Responses to Comments 006-138 and 006-144.

0061-179

The comment states that carbon monoxide emissions from both construction and operations of the Project exceed the significance thresholds and that these should also have been translated into ambient concentrations.

Please see GR-1 – Beyond the Scope of the SREIR and Response to Comments 0061-138 and 0061-144.

0061-180

The comment states that the SREIR cannot rely on MM 4.3-1 to reduce emissions from permitted stationary sources that would be required to obtain offsets under SJVAPCD Rule 2201 because offsets are not valid CEQA mitigation unless they reduce emissions at the time and location where the impacts occur.

Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the judgment of the Court of Appeal, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. The use of offsets or ERCs under MM 4.3-1 and Rule 2201 was never challenged and thus is beyond the scope of the SREIR. The comment's assertions about the use of offsets in CEQA is incorrect, and the comment provides no support for the assertion. The Court of Appeal found that mitigation fees leading to emission reduction projects (or offsets) under MM 4.3-8 were valid and enforceable CEQA mitigation despite the fact that emission reduction projects will sometimes be implemented outside of Kern County and that there may be a gap between emitting activities and implementation of emission reduction projects. The court also stated that the SREIR was not required to identify potential emission reduction projects to be implemented under the OG-ERA or describe the availability of an offsetting project. Many other CEQA cases have upheld fee mitigation programs that provide for offsite mitigation that occurs after impacts begin. See, e.g., *Friends of Lagoon Valley v. City of Vacaville* (2007) 154 Cal.App.4th 807, 818 (absence of specific time schedule for completing road improvements with traffic mitigation fees was not fatal). Please see Response to Comment

0009-17. As to the SJVAPCD ERC program, please see Response to Comment 0006-13. The inclusion of MM 4.3-1 in the SREIR is consistent with the SJVAPCD's GAMAQI, which states:

The District's permitting process typically ensures that emissions of criteria pollutants from permitted equipment and activities at stationary sources are reduced or mitigated to below the District's thresholds of significance. District implementation of New Source Review (NSR) generally ensures that there is no net increase in emissions above specified thresholds from new and modified Stationary Sources for all nonattainment pollutants and their precursors. Permitted sources emitting more than the NSR Offset Thresholds for any criteria pollutant must, in general, offset all emission increases in excess of the thresholds. (SJVAPCD 2015, p. 88)

The District's attainment plans demonstrate that project-specific net emissions increase below New Source Review (NSR) offset requirements will not prevent the District from achieving attainment. Consequently, emission impacts from sources permitted consistent with NSR requirements are not individually significant and are not cumulatively significant. (SJVAPCD 2015, p. 108)

Consistent with the GAMAQI, the Project's mitigation measures ensure that permitted stationary sources from Project activities comply with Rule 2201 (New and Modified Stationary Source Review) and Rule 2301 (Emission Reduction Credit Banking). Pursuant to MM 4.3-8, all criteria emissions not required to be offset under the SJVAPCD's permitting NSR regulations will be offset under the OG-ERA, or alternatively, through verified reductions from other applicant sources. See SREIR (October 2020), Vol. 1, at 4.3-164–165. Taken together, these mitigation measures are fully consistent with SJVAPCD guidance for mitigating project-level emissions under CEQA. Compliance with regulations is a valid and commonly used CEQA mitigation. See, e.g., *Oakland Heritage Alliance v. Oakland* (2011) 195 Cal.App.4th 884, 906 ("a condition requiring compliance with regulations is a common and reasonable mitigation measure, and may be proper where it is reasonable to expect compliance"); *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal.App.4th 214, 243. Lead agencies may also assume that other agencies charged with enforcing environmental regulations will do so. *Towards Responsibility in Planning v. San Jose* (1988) 200 Cal.App.3d 671, 680 ("City is not obliged to speculate about effects which might result from violations of its own ordinances or water quality standards set by other agencies."). The SJVAPCD, as the expert agency on air quality in the Project Area, has determined that emissions of criteria pollutants from permitted equipment at stationary sources that are reduced by ERCs to levels below the SJVAPCD thresholds of significance in accordance with the SJVAPCD NSR rule generally ensure that there is no net increase in emissions and thus that attainment is possible.

0061-181

The comment states that historically banked ERCs are part of the CEQA baseline.

This is incorrect. The baseline for purposes of the project is actual physical conditions as they exist in Kern County, i.e., the current emissions from oil and gas operations in the Project Area, and not non-occurring emissions from other stationary sources turned into ERCs through the SJVAPCD banking process. Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the judgment of the Court of Appeal, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. The use of offsets or ERCs under MM 4.3-1 and Rule 2201 was never challenged and thus is beyond the scope of the SREIR. The 2015 FEIR and the SREIR also take a conservative approach with respect to emissions from drilling and operating future wells by using 2012 oil and gas drilling and operations activity levels as the baseline for measuring impacts. Although the total number of active wells is expected to increase over time from the 2012 baseline activities, CEQA would have allowed the SREIR to subtract baseline activity levels from the total number of projected wells in order to determine the incremental increase attributed to the Project. The 2015 FEIR and the SREIR do not consider that increment; instead, the analysis treats every future well drilled and operated as a new well for which emissions will be mitigated. In other words, emissions from well drilling and operations which would otherwise have been subtracted as baseline activities are considered new impacts resulting from the project, and will be mitigated accordingly. This goes further than CEQA requires, and is a particularly conservative approach considering that oil well drilling and operation in the County is ongoing and has occurred for many years. The comment appears to be arguing about ambient air quality rather than criteria pollutant emission increases. These are separate and distinct analyses. Please see Response to Comment 0061-180.

0061-182

The comment states that ERCs are not valid as CEQA mitigation. Please see GR-1 – Beyond the Scope of the SREIR.

The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the judgment of the Court of Appeal, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. The use of offsets or ERCs under MM 4.3-1 and Rule 2201 was never challenged and thus is beyond the scope of the SREIR. Please see Response to Comment 0061-180. Nothing in CEQA prevents offsets from being utilized to mitigate for project emissions, and this approach was supported by the Court of Appeal when it verified that MM 4.3-8 is a valid and effective mitigation measure. If the comment is concerned about local air quality impacts on sensitive receptors, those are analyzed and mitigated in Impact 4.3-3 and via MM 4.3-5. See SREIR (October 2020), Vol. 1, at 4.3-143–160. For a discussion of the Project’s analysis of local emissions and health impacts, please see GR-6 – Health Risk Assessments and Responses to Comments 0008-27, and 8-58 through 0008-62.

0061-183

Please see GR-1 – Beyond the Scope of the SREIR. The comment does not address PM_{2.5} emission impacts, MM 4.3-8 and the OG-ERA, or the multi-well HRA. Based on the judgment of the Court of Appeal, these are the only air quality topics required to be addressed in the SREIR. See Slip Opinion, at p. 140. The use of offsets or ERCs under MM 4.3-1 and Rule 2201 was never challenged and thus is beyond the scope of the SREIR. Please see Responses to Comments 0061-180 through 0061-182. As to ambient air quality increases, please see Responses to Comments 0061-137 through 0061-179.

0061-184

The comment states that the use of ERCs and the OG-ERA are not valid mitigation under CEQA.

Please see GR-1 – Beyond the Scope of the SREIR. The use of ERCs in MM 4.3-1 was not challenged in the Court of Appeal. As explained in Response to Comment 0009-17, the Court of Appeal upheld the use and validity of offsets as mitigation in MM 4.3-8 and the OG-ERA. Please see Responses to Comments 0061-180 through 0061-183. The SREIR did conduct a local air quality analysis and prepared estimates of the potential emissions expected to be generated by Project activities. The comment provides no support for the statement that the use of offsets to mitigate air quality impacts are not valid mitigation and the courts have held otherwise. See Slip Opinion, at p. 59–67 (upholding MM 4.3-8 and OG-ERA as valid mitigation under CEQA); *Center for Biological Diversity et al. v. Kern County*, Fifth Appellate District, Case No. F061908 (upholding voluntary emission reduction agreement as CEQA mitigation).

0061-185

This is an introductory comment that does not concern the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0061-186

This is an introductory comment that lists various written materials reviewed. This comment does not concern the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0061-187

This comment explains that the SREIR summarizes various studies and other reports provided to the County in the September 16, 2020, comment letter (see Comment 0009). This comment also notes that such studies and reports acknowledge various health effects and adverse health outcomes.

This comment does not concern the adequacy of the SREIR and therefore does not require a detailed response. This comment is noted and will be considered by County decisionmakers.

0061-188

This comment correctly notes that the SREIR identifies various characteristics and limitations of some of the studies and reports provided in comments on the SREIR (August 2020).

Please see Response to Comment 0061-58. The SREIR (October 2020) explained the findings, as well as limitations, deficiencies, and geographic differences (if any), of each study to provide the public and decisionmakers with an updated account of studies that have been published subsequent to the 2015 FEIR that investigated health effects that may be associated with oil and gas development. A more in-depth analysis of the health studies and their objectives, findings, and conclusions is included in the Health Studies Chart attached to Response to Comments set 0009.

0061-189

The comment states that the SREIR's summary of the various studies and reports and associated disclosures do not represent the County's own analysis of such studies.

The SREIR's summary of the various studies and reports and associated disclosures do represent the County's own analysis of such studies. To the extent that this comment suggests that CEQA requires the SREIR to include an "in-depth review" of such studies and reports, it is mistaken.

0061-190

This comment explains that the studies and reports submitted in comments on the SREIR (August 2020) and summarized in the SREIR (October 2020) found various associations and correlations between various health outcomes and exposures and certain oil and gas activities. This comment also claims that the studies and reports are corroborated by other unspecified sources that can purportedly be accessed using various online search engines and databases. This comment is noted and will be considered by County decisionmakers. This comment does not concern the adequacy of the SREIR and no further response is required.

With respect to such studies and reports, please see Response to Comment 0009-62 and the Health Studies Chart attached to Response to Comments set 0009.

0061-191

This comment asserts that it is standard practice for scientific studies to include and disclose study limitations, inconclusive or negative findings, and caveats of the study investigations. This claim is not disputed by the County. This comment is noted and will be considered by County decisionmakers.

0061-192

This comment is introductory and does not concern the adequacy of the SREIR. This comment is noted and will be considered by County decisionmakers.

Please see Response to Comment 0009-62 and the Health Studies Chart attached to Response to Comments set 0009 regarding the studies and reports that are the subject of this comment.

0061-193

This comment confirms that Tran et al. (2020) and Gonzales et al. (2020) do not prove causation and lack direct exposure measures in their investigations of adverse birth outcomes in proximity to oil and gas operations. This comment also claims that the same limitations also characterize most other studies and reports submitted in comments on the SREIR (August 2020). This comment is noted and will be considered by County decisionmakers.

Please see Response to Comment 0009-62 and Health Studies Chart attached to Response to Comments set 0009 regarding the studies and reports that are the subject of this comment.

0061-194

This comment confirms that, in the field of epidemiology and other unspecified fields of scientific study, proving cause-effect relationships between adverse health effects and proximity to oil and gas activities is challenging. This comment also confirms that observational associations are a common approach in epidemiology and contribute to public health decision-making.

The SREIR does not imply that the studies and reports submitted to the County should be ignored or have no informational value. This comment is noted and will be considered by County decisionmakers.

0061-195

This comment briefly summarizes a 2014 study of the health effects experienced by military personnel who served in the Gulf War that examined associations between health outcomes and exposures to various fuels and substances. This comment quotes such study to explain that associations is primarily a statistical concept referring to the relationship between two variables. This comment is noted and will be considered by County decisionmakers. Please see Responses to Comments 61-60, 61-63, 61-64, 61-67 and 61-69 regarding the health studies summarized in the SREIR (October 2020).

0061-196

This comment asserts: (1) studies designed to demonstrate causality often can only be implemented in a controlled environment; (2) well-designed studies using statistically measurable associations between outcome variables and explanatory variables can generate useful information, and (3) the studies and reports submitted to the County should be evaluated within the context of their scope and purpose. This comment is noted and will be considered by County decisionmakers. Please see Responses to Comments 61-60, 61-63, 61-64, 61-67 and 61-69. The SREIR (October 2020) includes summaries of health studies (including their findings, methods and data gaps) not to “dismiss” or “ignore” various health studies on those grounds, but in a good-faith effort to fully disclose them in an accurate and objective manner.

0061-197

This comment asserts that association studies are widely used in disciplines other than epidemiology and are a key method used in the study of genetics. This comment is noted and will be considered by County decisionmakers. Please see Responses to Comments 61-60, 61-63, 61-64, 61-67 and 61-69 regarding the health studies summarized in the SREIR (October 2020).

0061-198

This comment confirms that it is beneficial to measure actual exposure to health-relevant agents and to establish exposure-effects relationships, but asserts that the failure to do so is not problematic if such analysis is not within a studies scope and purpose. This comment also claims that exposure measurement in oil and gas operations is challenging due to various stated factors (such a monitoring limitations, emission episode variability, and costs) and researchers thus design studies to use proxy variables that have been shown to correlate with exposure methods of interests, such as well density, citing Gonzales et al. (2020) as an example.

The SREIR does not “criticize,” but rather notes, the lack of direct exposure measurements in various reports and studies submitted to the County. With regard to the study referenced in this comment, please see the Health Studies Chart attached to Response to Comments set 0009.

0061-199

This comment confirms that it is challenging to appropriately control for confounding variables in any observational epidemiological study, as are random error, systemic error, and reverse causality, thus resulting in spurious associations. This comment also asserts that such confounding variables could mask associations that actually exist, citing the Gulf War study that is the subject of Comment 0006-195. This comment explains that many studies use sensitivity analysis to test their results and minimize spurious associations, and that such limitations are minimized by the nature of the peer review process.

The SREIR does not “criticize,” but rather notes, how the various studies and reports that are the subject of this comment addressed potential confounding variables. Dr. Garabrant has clarified that, with regard to the Tran et al. (2020) study, his statements in the September 2020 memo were correct, with the exception of prenatal care (for which the Kotelchuck index was used for adjustments), and that his comments on smoking were correct insofar as smoking was not included in the models because it was missing for 360,065 births (Garabrant 2020b, p. 7). Dr. Garabrant stands by his statements in the September 2020 memorandum concerning the Gonzalez et al. (2020) study, which, he explains were correct as written (Garabrant 2020b, p. 7). Dr. Garabrant further notes that this comment provides no evidence that the Gonzalez et al. (2020) study’s various comments and analysis properly controlled for confounding by smoking, poverty, or lack of access to health care (Garabrant 2020b, p. 7). Dr. Garabrant further notes that this comment provides no evidence that the Tran et al. (2020) study’s various comments and analyses properly controlled for confounding by smoking or poverty (Garabrant 2020b, p. 7).

Similarly, the SREIR does not “criticize,” but rather notes, the extent to which various reports and studies submitted to the County may not have appropriately controlled for confounding variable. With regard to the studies and reports that are the subject of this comment, please see Response to Comment 0009-62 and the Health Studies Chart attached to Response to Comments set 0009. This comment is noted and will be considered by County decisionmakers.

0061-200

This comment asserts that small sample sizes in scientific studies can arise by design and by necessity and claims that in some disciplines small sample sizes are the norm. This comment confirms that the primary impact of small sample sizes is a reduced likelihood of demonstrating statistical evidence in support of a specific hypothesis and the potential for false-positive findings. This comment claims that such impacts may be minimized through proper study design. This comment further asserts that there is agreement within the “universe of studies” that exposure risks exist with respect to oil and gas activities. This comment is noted and will be considered by County decisionmakers. Please see Responses to Comments 61-60, 61-63, 61-64, 61-67 and 61-69 regarding the health studies summarized in the SREIR (October 2020).

0061-201

This comment confirms that some of the reviewed literature used “convenience samples” or collections of observational units that are deemed not representative and thus may not reflect the relevant characteristics of the population and/or conditions about which researchers wish to draw an inference. This comment also confirms that, while randomness may be used to ensure representativeness, not all data collection contexts, including in observational studies, permit randomized sampling. This comment further states that, in such cases, the subject study may only be applied to the studied population or conditions, absent a successful application of validity screenings and bias adjustments, or that the collected data and analysis represents a “not fully representative part of the full picture.” This comment is noted and will be considered by County decisionmakers. Please see Responses to Comments 61-60, 61-63, 61-64, 61-67 and 61-69 regarding the health studies summarized in the SREIR (October 2020).

0061-202

This comment confirms that the use of self-reporting questionnaires to collect data for a study has the potential to result in under-information bias or misclassification. This comment asserts, however, that self-reporting questionnaires are nevertheless commonly used in epidemiologic and medical research, can help provide a wider range of responses than other forms of data collection, and can be valuable in obtaining subjects’ personal views and opinions. This comment also claims that the studies and reports submitted to the County that rely on self-reporting questionnaires are similar to other unidentified studies, that there are methods to reduce under-information bias, and that such studies report findings that are “in line” with other studies that used clinical diagnoses.

This comment does not explain whether the subject studies did in fact rely on the methods to reduce under-information bias identified in this comment. The SREIR does not “criticize,” but rather notes, the extent to which various reports and studies submitted to the County relied on self-reporting questionnaires.

0061-203

This comment claims that studies conducted outside of California showing associations between oil and gas activities and adverse health effects are relevant to California-based risk assessments despite geologic, engineering, and regulatory differences.

Despite this comment’s claim to the contrary, the SREIR does not dismiss or “downweigh” any study that concerns oil and gas activities outside of California but rather notes that differences exist. With respect to the studies and reports that are the subject of this comment, please see the Health Studies Chart attached to Response to Comments set 0009. With respect to the differences between California oil and gas activities and those conducted in other states, please see Responses to Comments 0061-34 and 0061-69.

0061-204

The SREIR notes the Haley (2016) study submitted to the County reviewed geography, current statutes, and regulations, evacuations, thermal modeling, air pollution studies, and vapor cloud modeling within the Marcellus, Barnett, and Niobrara Shale Plays to determine whether setbacks are adequate. See SREIR (October 2020), Vol. 1, at 4.3-31. The SREIR also notes that this study relied on thermal modeling based on average gas wells but did not take into account local geography, weather patterns, engineering specifics of each particular well, or nearby structures that may have presented different results, and it focused on hydraulic fracturing practices in Texas, Pennsylvania and Colorado, which are not the same as those conducted in California. See SREIR (October 2020), Vol. 1, at 4.3-31. This comment claims that such variation need only be taken into account if the purpose of the study is to identify the major emission sources of a specific air contaminant at a specific site or small number of sites in close proximity to receptors, but that average statistics on emission rates may be sufficient if the purpose of the study is characterize the airfield of a larger area such as an oil field or nationally. This comment does not address the study’s other limitations noted in the SREIR. The SREIR does not “criticize,” but rather notes the Haley (2016) study’s use of average gas wells in thermal modeling. This comment is noted and will be considered by County decisionmakers.

With respect to the studies and reports that are the subject of this comment, please see Response to Comment 009-62 and the Health Studies Chart attached to Response to Comments set 0009. With respect to the differences between California oil and gas activities and those conducted in other states, please see Responses to Comments 0061-34 and 0061-69.

0061-205

This comment explains that field studies are often used in epidemiology to identify potential health risks and to inform response strategies to such risks. This comment also explains that field studies often rely on observational data and can be used to “ground truth” modeling exercises. This comment is noted and will be considered by County decisionmakers. Please see Responses to Comments 61-60, 61-63, 61-64, 61-67 and 61-69. The SREIR (October 2020) includes summaries of health studies (including their findings, data gaps and geographic setting) not to “dismiss” or “ignore” various health studies on those grounds, but in a good-faith effort to fully disclose them in an accurate and objective manner.

0061-206

The comment is a revised Attachment C to the comment letter submitted on the SREIR (August 2020).

It is unclear what the purpose of Attachment C is, as the comment letter does not cite it specifically. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response. Attachment C states that between 2014 and 2019, the cost per ton of pollutant reductions under the SJVAPCD VERA program has more than doubled and the cost per ton under the ISR Program has increased by approximately 20 percent. As the cost OG-ERA mitigation fee is tied to the annual cost per ton of emission reductions achieved under the SJVAPCD ERA programs, (that is, as the cost of funding emission reduction projects goes up), the OG-ERA mitigation fee will also increase in cost. The comment states that there are errors in the SJVAPCD’s annual ISR reports for 2011 and 2012. Kern County local permitting for oil and gas activities did not begin with the OG-ERA until December 9, 2015. Therefore any ISR Report done by the SJVAPCD prior to the 2016 report is not relevant and provides no specific evidence for this SREIR. Please see Response to Comment 0009-144.

0061-207

The comment is a revised Attachment C to the comment letter submitted on the SREIR (August 2020).

It is unclear what the purpose of Attachment C is as the comment letter does not cite it specifically. The comment notes a discrepancy in the SVJACPD ISR Report for 2014. Kern County local permitting for oil and gas activities did not begin with the OG-ERA until December 9, 2015. Therefore any ISR Report done by the SJVAPCD prior to the 2016 report is not relevant and provides no specific evidence for this SREIR. Please see Response to Comment 0009-144. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response.

0061-208

The comment asserts that MM 4.3-6 noted by the comment as “Valley Fever and Pandemics” is inadequate and references a submitted report by Phyllis Fox.

The report details incidence of Valley Fever in San Diego, Monterey, and San Luis Obispo Counties associated with large-scale construction projects, including commercial scale solar projects. The report includes photos of large-scale mass grading of projects and links these impacts to oil and gas operations. No specific or site-specific information is included or referenced for the San Joaquin Valley portion of Kern County. No large-scale grading is involved in the oil and gas activities permitted by the Project, and the mitigation proposed by the comment is specific to such heavy equipment operations. Kern County has historically been the center of Valley Fever research in California and has experience with effective mitigation; however, there is no vaccine for Valley Fever at the present time. MM 4.3.6 incorporates all the recommendations of the Kern County Public Health Services Department, including a worker education program, and was clarified in the SREIR (October 2020). Potential health risks from contracting Valley Fever remain significant and unavoidable even with mitigation and public education campaigns. No further feasible mitigation has been identified to reduce the risk of contracting Valley Fever.

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DAVID H. GARABRANT, M.D., M.P.H.

December 30, 2020

I am Emeritus Professor of Epidemiology and Occupational Medicine at the University of Michigan School of Public Health, and Emeritus Associate Professor of Medicine at the University of Michigan School of Medicine. I am board certified in occupational and environmental medicine and internal medicine. I am also qualified as a specialist in the field of epidemiology, especially as it relates to the study of diseases related to exposures to chemical agents. While I have been on the faculty of the University of Michigan, I have served as Director of Occupational Medicine (1988-94), head of the Occupational Health Program (1992-95), Director of the Center for Occupational Health and Safety Engineering (1990-95), Director of the Occupational & Environmental Epidemiology program (2001-2007), and Founding Director of the Risk Science Center (2003-2017). My research since 1980 has focused on the long-term health effects of chemicals on humans and I have published over 360 research articles, book chapters, and abstracts related to this area. My full curriculum vitae is attached.

I have reviewed the December 14, 2020 letter from Hollin Kretzmann, et al., to the Kern County Planning and Natural Resources Department titled *Re: Comments on the Draft Supplemental Recirculated Environmental Impact Report (October 2020) for Revisions to Title 19-Kern County Zoning Ordinance (2020-A) Focused on Oil and Gas Local Permitting (SCH # 2013081079)*. I will refer to this as the EarthJustice letter. I have a number of comments, below, regarding pages 42-49 of the Earthjustice Letter and Addendum C (comments by Tanja Srebotnjak, PhD).

At page 42, second paragraph, EarthJustice asserts

“... the Garabrant Memorandum is merely a slightly more elaborate version of the same fundamentally mistaken conflation of study design parameters with research deficiencies.”

The deficiencies in the design of the Tran (Tran, 2020) and Gonzalez (Gonzalez, 2020) studies are the principal reasons, among others, that these studies do not provide reliable evidence of causal associations between OGD and adverse birth outcomes. There is no “conflation” of anything. The studies were not designed in a way that emissions of any particular chemical or physical agent from OGD could be reliably evaluated with respect to the occurrence of abnormal birth outcomes.

At page 43, second paragraph, Earthjustice asserts

“With respect to a significant fraction of the studies, the County dismissed them with a passing reference to the fact that the study did not prove ‘causation,’ or measure ‘actual exposure.’ This statement, although styled as a critique, is actually merely a description

of the type of study that was done, which in no way diminishes its import. The cited studies are, in large part, epidemiological assessments, whose goal is to determine whether a particular health impact is statistically associated, or correlated, with proximity to upstream oil and gas development activities. Identification of the exact mechanism and pathway that is causing the risk is a very different type of possible study, that might be done (or might have already been done) by researchers with different focus and expertise.”

The Tran and Gonzalez studies did not measure actual exposures and they provide little, if any, evidence that supports an interpretation that OGD is causally associated with adverse birth outcomes. My comments are not “merely a description of the type of study that was done.” They are reasonable conclusions based on a rigorous review of the study design, methods, results, and conclusions reported in the Tran and Gonzalez studies.

Other authors agree that reliable exposure assessment is important for assessing causation. As Merrill states in his textbook *Environmental Epidemiology, Principles and Methods* (Merrill, 2008)(at pages 32-34) “Measuring the intensity and duration of exposure is often necessary for supporting causal association.” “Identifying an association between dose and an adverse health outcome provides support for causality. The quality of the exposure measurements influences the validity of the study.” “Data most appropriate for assessing risk factors are those obtained from personal monitoring and use of biologic markers.”

Methods for assessing causation have been described by many authors, and most adhere to the approach put forth by Austin Bradford Hill in 1965 (Hill, 1965) in which strength of association, replication, temporality, biologic gradient (dose-response), specificity, biologic plausibility, coherence, experiment, and analogy should be considered. The Tran and Gonzalez studies do not provide evidence that satisfies any of the nine considerations and it is reasonable to conclude that they not only “do not prove causation”; they also provide almost no support whatsoever for causation.

EarthJustice invokes an irrelevant issue when it says, “Identification of the exact mechanism and pathway that is causing the risk is a very different type of possible study, that might be done (or might have already been done) by researchers with different focus and expertise.” While this is true, this claim in no way remedies the deficiencies in the Tran and Gonzalez studies, nor does it provide any evidence that would make us think these studies provide stronger support for causation.

EarthJustice’s consultant, Dr. Tanja Srebotnjak makes related assertions (Addendum C, page 4) where she says

“Indeed, observational association studies are a widely used approach in epidemiology and contribute meaningfully to public health decision-making. The County’s implication that the cited studies should be ignored or downweighed because they use statistical analysis to determine the association between one or more health outcome variables of interest on the one hand and one or more explanatory variables on the other is thus misguided and does not hold up to scrutiny in light of decades of established epidemiological practice.”

While observational association studies are widely used in epidemiology and can contribute to public health decision making, this point is relevant only when the studies provide reliable evidence. Assessing causation requires the identification of reliable associations between exposures and health outcomes (Hill, 1965). Causal inferences provide a basis for public health actions (Weed, 1995). The issue at hand is that the Tran and Gonzalez studies are not of high enough quality to provide a reliable basis for deciding that OGD exposures cause abnormal birth outcomes, not whether observational studies are used in epidemiology.

At page 44-45, EarthJustice states

“Garabrant defines the criteria for an exposure assessment, but the Gonzalez et al. (2020) and Tran et al. (2020) studies - like most of the other cited studies - do not fall into that category of research. These two studies were designed to determine whether an association exists between proximity to drilling operations and the adverse birth outcomes at issue—not to assess or measure the exposure of the women studied to any particular chemical. Thus, while it is true as a factual matter that “Neither of the studies at issue (Gonzalez, 2020; Tran, 2020) has adequate information on emissions from OGD sites, with reliable temporal information, to provide any reliable estimate of any study participant’s exposure at any point during gestation,” **that is because neither study is in any way grounded in that type of information.** Garabrant also complains that **the authors “did not explain” the cause of certain counter-intuitive results.** But once again, **the studies were not designed to explain the association results at all.** They were designed to identify associations, or lack thereof—which, as explained above, is critically important information for policymaking purposes. Garabrant’s critique on this score amounts to a concern that the observational results of the studies did not turn out as he speculates they should have. A more complete discussion of the flaws in the Garabrant Memorandum is set forth in the Srebotnjak Memorandum (Addendum C). [emphasis added]

Dr. Srebotnjak makes related comments (Addendum C, page 5)

“While it can be beneficial in principle to measure actual exposures to health-relevant agents and to establish exposure-effect relationships, failure to do so is not problematic if such analysis is not within the study’s scope and purpose.”

Here, EarthJustice and Dr. Srebotnjak claim in essence that the Tran and Gonzalez studies were not designed to measure exposures so they should not be criticized for their deficiencies in exposure assessment. If this premise were true, it would mean that any scientific study that was deficient in any way could not be criticized for its deficiency as long as it was designed to be deficient. As far as I am aware, this concept is not endorsed by the scientific community. I have never heard of it before or seen it mentioned in scientific publications. Neither EarthJustice nor Dr. Srebotnjak provides any reference for this approach to scientific research.

Since the reliability of scientific research is highly dependent on study design and conduct, it is essential that the design and conduct of the research, including deficiencies, be evaluated and critiqued, as I have done. A scientific study’s results are only reliable if its design and conduct are reliable. To the extent that the Tran and Gonzalez studies were deficient in exposure

assessment, their results must be evaluated with that limitation in mind. As Rodricks has stated “Understanding exposure is essential to understanding whether the toxic properties of chemicals have been or will be expressed.” (Rodricks, 2011) Neither Tran nor Gonzalez provides exposure information that supports a conclusion that any pregnant woman has been exposed to any chemical from OGD at levels sufficient for the toxic properties of that chemical to be expressed.

Dr. Srebotnjak claims in addition (Addendum C, page 5)

“Studies such as the one by Gonzalez et al. (2020) have also validated their proxy by confirming that increased oil and gas activity as measured by well numbers and/or production volumes is associated with increased concentrations of specific air pollutants.”

Dr. Srebotnjak’s interpretation of the Gonzalez paper appears to be wrong. Gonzalez showed the relationship between air quality and OGD exposure tertiles in table e19. There was no statistically significant association between OGD exposure and ozone, PM₁₀, or PM_{2.5}. There was a statistically significant decrease in NO₂ with increasing OGD exposure, contradicting Dr. Srebotnjak’s claim. More importantly, there is nothing in the Gonzalez paper that supports a conclusion that any participant was exposed to any chemical agent at levels where the toxic properties of that chemical would be expressed.

EarthJustice makes a second claim that is antithetical to scientific principles when they claim that the Tran and Gonzalez studies “were not designed to explain the association results at all.” (page 45, first paragraph) Here, it is worth describing the scientific method: The scientific method starts by stating a hypothesis; the hypothesis must be tested to determine whether it is supported by evidence; the scientist then designs a study that is capable of testing the hypothesis, including a protocol that defines the methods for data collection and analysis; the data are then analyzed and interpreted to determine whether they support, or do not support, the hypothesis. Interpretation of results is an essential part of a scientific study, and it was part of the Tran and Gonzalez studies, as well.

Gonzalez, for example, explained how an association supported their study hypothesis (at page 6, first paragraph on the left)

“... we found evidence that proximity to wells in preproduction is associated with higher exposure to PM₁₀ and PM_{2.5}, which supports our hypothesis that proximity to wells in preproduction confers risk.”

Tran, for example, explained how their findings were different than previous studies and that the effects of moderate and high exposures to active wells on PTB were contradictory (at page 9, second paragraph on the right)

“Unlike previous studies, we found no significant association between exposure to active wells and PTB except in the third trimester in urban areas where moderate exposure appeared harmful and high exposure protective.”

Obviously, Tran and Gonzalez were explaining what their associations meant, contradicting the assertion by EarthJustice.

At page 49 EarthJustice states

“d. False assertions in the Garabrant Memorandum regarding confounding factors

The Garabrant Memorandum asserts that the Tran and Gonzalez studies failed to consider various confounding factors—i.e., factors that might impact the results of the research but are not the subject of it (e.g., smoking habits, income level, etc.). Dr. Garabrant makes no effort to describe the significance of the researchers’ inability to control for a particular factor (all of the epidemiological research addressed a set of confounding factors they had selected to analyze).”

I will first respond to EarthJustice’s claim that I “made no effort to describe the significance of the researchers’ inability to control for particular factor[s].” The significance of the authors’ inability to control for various factors that are potential confounders is that they cannot state with confidence that their results were reliable or that they were not biased by the presence of those confounding factors. These are deficiencies in their study design and conduct that must be considered when we evaluate the reliability of their results and conclusions.

At page 50, EarthJustice states

“More importantly, however, the Garabrant Memorandum is wrong in its assertions regarding confounding factors that were not considered - a somewhat surprising error given that the researchers explicitly described their consideration of that factor in the paper. Garabrant states that ‘neither study [Tran et al. 2020 or Gonzalez et al. 2020] assessed confounding due to smoking, drug use, alcohol, infections during pregnancy, pharmaceuticals, malnutrition, poverty, lack of access to health care, maternal disease, pregnancy complications, or genetics.’ However, each of the papers specifically describes the researchers’ consideration of some of these identified factors. In particular, Gonzalez et al. (2020) considered potential contributors to preterm birth, including prenatal care access and neighborhood-level socioeconomic factors, but found that adjusting for these factors did not change the overall conclusions. The researchers also performed a sensitivity analysis to investigate whether traffic-related air pollutants account for the observed association between oil/gas and preterm birth and found that their conclusions were not changed by accounting for traffic.”

Dr. Srebotnjak makes related comments (Addendum C, page 6)

“Many studies use sensitivity analyses to test the dependence of their results on the assumptions and analysis decisions made in the study, a safeguard that was also applied to studies in the literature provided to the County (e.g., Gonzalez et al. 2020).”

“While the County might raise objections to the choice of control variables in the authors’ methods and models, the domain-specific expert peer-review provides a substantial level of insurance against the omission of critical control variables.”

“In other cases, the authors have discussed why they were not able to include a specific control variable in the study’s limitations section. In his letter, Dr. Garabrant states “neither study [Tran et al. (2020) or Gonzalez et al. (2020)] assessed confounding due to smoking, drug use, alcohol, infections during pregnancy, pharmaceuticals, malnutrition,

poverty, lack of access to health care, maternal disease, pregnancy complications, or genetics.” However, this is not true as the authors use and discuss several potential confounding variables, including smoking, prenatal care, socio-economic status and nearby traffic-related air pollutants. None of these factors was found to significantly alter the effect of the oil and gas metric used in their models.”

First, in order to control for confounding, data on the potential confounding factor must exist for each individual in the study. Statistical models in which each confounding factor is included are compared to models in which the confounding factor is not included, and the effect estimates (for the outcome of interest) from these models are compared. If there is no appreciable change in the effect estimate between the model that includes the confounder and the model that excludes the confounder, then there is no evidence of confounding. If there is an appreciable change in the effect estimate this is regarded as evidence of confounding. The confounding factor must then be retained in the statistical model.

In the Tran study, covariates that were identified as potential covariates, and that were derived from birth records (meaning individual-level data) were:

- Infant sex, month of birth, year of birth
- Maternal age, race/ethnicity, educational attainment, Kotelchuk index of prenatal care, and parity.

Prepregnancy BMI and smoking during pregnancy were available for 2007-2015 births but not for 2006 births. Because smoking information was missing for 2006, smoking was not included in the overall analyses. The authors conducted a sensitivity analysis restricted to the 2007-2015 births, in which smoking and prepregnancy BMI were both included. Those results (table S12) showed appreciable changes in term birth weight (tBW) compared to the unadjusted models (table S7) for both urban and rural births, suggesting that there was substantial confounding by smoking and prepregnancy BMI. No results were presented that allowed the effect of smoking by itself on tBW to be assessed.

Other variables that were area-level variables (meaning they were not available at the individual level) were:

- Indicators for air basin, census tract based urban/rural status, modeled NO₂ concentrations, and a measure of income concentration.

The investigators assigned census tract-level annual ambient NO₂ concentration as a proxy for traffic related air pollution. Thus, not only did the investigators not have any individual-level information on either NO₂ or traffic-related air pollution, they did not even have area-level information that was specific to the dates of the pregnancy (it was specific only to the year of the pregnancy, based on last menstrual period).

A measure of “income concentration” was derived from a measure of neighborhood relative deprivation or affluence based on household income by census tract in two five-year periods (2006-2010 and 2011-2015). Thus, the income of any specific household during any specific pregnancy was unknown.

In the Gonzalez study, covariates that were identified as potential covariates were mother's age, race/ethnicity, educational attainment, and parity. The investigators did not have information on smoking and did not adjust for it. Instead, they presented a sensitivity analysis limited to Hispanic women who were thought to have a low prevalence of smoking. The investigators had no individual-level data on the smoking habits of the Hispanic women. This analysis provided no information that would allow any assessment of confounding by smoking among either non-Hispanic or Hispanic women. To account for "socioeconomic factors", the authors fit models adjusted for the mother's insurance payer, a yes/no indicator of whether prenatal care was initiated before 5 months, and a yes/no indicator for whether >20 percent of families in the census block group were below the poverty level in the 2000 census. Thus, this study had no individual level information on poverty and inadequate information on prenatal care.

In my letter of September 12, 2020, I stated that neither the Tran nor Gonzalez study assessed confounding due to smoking, drug use, alcohol, infections during pregnancy, pharmaceuticals, malnutrition, poverty, lack of access to health care, maternal disease, pregnancy complications, or genetics. With regard to the Tran study, my statement was correct, with the exception of prenatal care (for which the Kotelchuk index was used for adjustment). My comments on smoking were correct insofar as smoking was not included in the models because it was missing for 360,065 births (see Tran Table 3). With regard to the Gonzalez study, my comments were correct as written.

Dr. Srebotnjak's claim that my September 12, 2020 statement regarding confounding in the Tran and Gonzalez studies is not true is simply incorrect. She provided no evidence that either Tran or Gonzalez controlled for drug use, alcohol, infections during pregnancy, pharmaceuticals, malnutrition, maternal disease, pregnancy complications, or genetics. With respect to Gonzalez, she provided no evidence that their various comments and analyses properly controlled for confounding by smoking, poverty, or lack of access to health care. With respect to Tran, she provided no evidence that their various comments and analyses properly controlled for confounding by smoking or poverty.

Thus, the comments made by EarthJustice and Dr. Srebotnjak with respect to confounding are misplaced and inaccurate. With the exception of the Tran's use of the Kotelchuk score for prenatal care, which I failed to mention, my statements regarding confounding were correct as written and the criticisms of EarthJustice and Dr. Srebotnjak are incorrect.

Sincerely,

A handwritten signature in blue ink, reading "David H. Garabrant".

David H. Garabrant, MD, MPH
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Ann Arbor, Michigan

References

1. Gonzalez DJX, Sherris AR, Yang W, Stevenson DK, Padula AM, Baiocchi M, et al. Oil and gas production and spontaneous preterm birth in the San Joaquin Valley, CA: A case-control study. *Environ Epidemiol*. 2020;4(4):e099. Epub 2020/08/25.
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3. Merrill RM. *Environmental epidemiology: principles and methods*. Sudbury, Massachusetts: Jones and Bartlett Publishers; 2008. 1-483 p.
4. Rodricks JV. Reference manual on exposure science. *Reference Manual on Scientific Evidence*, Third Edition. Washington, D. C.: Federal Judicial Center, National Academies Press; 2011. p. 503-48.
5. Tran KV, Casey JA, Cushing LJ, Morello-Frosch R. Residential Proximity to Oil and Gas Development and Birth Outcomes in California: A Retrospective Cohort Study of 2006-2015 Births. *Environ Health Perspect*. 2020;128(6):67001. Epub 2020/06/04.
6. Weed DL. Causal and preventive inference. In: Greenwald P, Kramer BS, Weed DL, editors. *Cancer Prevention and Control*. New York: Marcel Dekker, Inc.; 1995. p. 285-302.

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Emeritus Professor of Occupational Medicine and Epidemiology
The University of Michigan School of Public Health

Education and Training

High School: Westfield High School
Westfield, New Jersey
1965 – 1968

Undergraduate: Tufts University
Medford, Massachusetts. Sept 1968 – June 1972
B.S., Chemical Engineering, June 1972

Graduate: Tufts University School of Medicine
Boston, Massachusetts. Sept 1972 – June 1976.
M.D. received June 1976

Internship: Medicine Intern
Georgetown University Hospital
Washington, D.C.
July 1976 – June 1977

Fellowship Internal Medicine, Ambulatory Care
Georgetown University Hospital
Washington, D.C.
September 1977 – June 1978

Residency: Occupational Medicine
Harvard School of Public Health
Boston, Massachusetts
September 1978 – June 1980
M.P.H. degree received June 1979
M.S. in Physiology (Occupational Medicine) received June 1980

Internal Medicine
Boston University Medical Center
Boston, Massachusetts
July 1980 – June 1981

Certification and Licensure

Licensure District of Columbia, 1978, (Certificate - 10775) (inactive)
Maryland, 1977, (Certificate - D-20626) (inactive)
Massachusetts, 1978, (Certificate - 42987) (inactive)
California, 1982, (Certificate - G-47344) (inactive)
Michigan, 1989, (Certificate - 054132) (active)

Board Certification Internal Medicine, 1981
Preventive Medicine, 1982
Subspecialty certification, Occupational Medicine, 1982

Academic, Administrative, and Clinical Appointments

Teaching Assistant in Medicine, Boston University School of Medicine, July 1980 – June 1981

Assistant Professor, University of Southern California School of Medicine, August 1981 – June 1988

Associate Professor, University of Southern California School of Medicine, June 1988 – November 1988

Associate Professor, University of Michigan School of Public Health, December 1988 – June 1996

Associate Professor of Medicine, Department of Medicine, University of Michigan School of Medicine, December 1989 – September 2002

Visiting Faculty, University of Indonesia School of Medicine, August 1995 – June 1996 (Sabbatical)

Professor of Occupational Medicine, University of Michigan School of Public Health, June 1996 – September 2007

Associate Professor, Department of Emergency Medicine, University of Michigan School of Medicine, September 2002 – September 2007.

Professor of Epidemiology, University of Michigan School of Public Health, June 2003 – September 2007

Founding Director, University of Michigan, Center for Risk Science and Communication, 2004 – 2018.

Emeritus Professor of Occupational Medicine and Epidemiology, University of Michigan School of Public Health, September 2007 – present

Emeritus Associate Professor of Emergency Medicine, University of Michigan School of Medicine, September 2007 – present

Honors And Awards

Graduated Magna Cum Laude, Tufts University, 1972.

Tufts University, Tau Beta Pi Engineering Honor Society, 1971

Awarded Training Grant for Study and Research in Occupational Medicine from the National Institute for Occupational Safety and Health, 1978, renewed 1979

Recipient of Preventive Oncology Academic Award, National Cancer Institute, 1987–1992

Chair, Safety and Occupational Health Study Section, National Institutes of Health, 1995–96.

Excellence in Research Award, University of Michigan School of Public Health, April 28, 2006

Top Docs 2006. Hour Detroit Magazine

Emeritus Professor, University of Michigan, September 2007

Research Excellence Award. University of Michigan Risk Center, October 16, 2007.

Franzblau, A., L. Zwica, K. Knutson, Q. Chen, S.-Y. Lee, B. Hong, P. Adriaens, A. Demond, **D. Garabrant**, B. Gillespie, J. Lepkowski, W. Luksemburg, M. Maier, and T. Towey, 2009, "An Investigation of Homes with High Concentrations of PCDDs, PCDFs and/or Dioxin-Like PCBs in House Dust," *J. Occupational and Environ. Hygiene*, 6:188-199. Best Indoor Environmental Quality Paper Award for 2009 awarded by American Industrial Hygiene Association.

Memberships in Professional Societies

American Occupational Medical Association 1982–88. Elected to fellowship, 1986

Western Occupational Medical Association, 1982–88

Board of Directors, 1984–88

Chairman, Educational Affairs Committee, 1986–88

American College of Preventive Medicine, 1985–present. Elected to fellowship, 1986

American Academy of Occupational Medicine, 1985–88

American College of Occupational and Environmental Medicine, 1988–present.

Elected to fellowship, 1988

Michigan Occupational Medical Association Board of Directors, 1989–91

Society for Epidemiologic Research, 1988–present

Michigan Public Health Association, 2001–present

Society for Risk Analysis, 2002–present

International Epidemiological Association, 2002–present

American Chemical Society, 2008–present

Editorial Positions, Boards, and Peer-Review Service

State of Washington Department of Labor and Industries. Chemically Related Illness Scientific Advisory Board. 1994–95.

Charter member, Safety and Occupational Health (SOH) Study Section for the National Institutes of Health, 1992-1996. Chairman, 1995–96.

Chair, Clinical Sciences Special Emphasis Panel. Alcohol and Toxicology (ZRG4) Study Section for the National Institutes of Health, November 1996.

Chair, NCI Review Panel on Breast Cancer and the Environment on Long Island. National Institutes of Health, January 31, 1997.

Member, NCI Review Panel on Regional Variation in Breast Cancer Rates in the United States. National Institutes of Health, Rockville, MD, November 9, 1998.

Member, NIOSH Special Emphasis Panel on Disease, Disability, and Injury Prevention Control Grants, National Institute for Occupational Safety and Health, Florence KY. February 21–23, 1999.

Member, NIEHS Special Emphasis Panel on Superfund Basic Research Projects, National Institute of Environmental Health Sciences, Research Triangle Park, NC. October 25–27, 1999.

Chair, NIOSH Site Visit to University of Washington Educational Resource Center. Seattle, Washington, November 7–9, 2001.

Chair, NIOSH Special Emphasis Panel on Training Programs in Occupational Health and Safety. St. Petersburg, Florida. February 17–20, 2002.

Mickey Leland National Urban Air Toxics Research Center, Houston, Texas. Appointed to Scientific Advisory Board, 2002–2009.

Member, NIH Special Emphasis Panel/Scientific Review Group 2006/10 ZLM1 ZH-P (O1), July 14, 2006

Member NIEHS Special Emphasis Panel/Scientific Review Group 2007/10. National Institute of Environmental Health Sciences, Research Triangle Park, NC. July 11–14, 2007.

Member, American Cancer Society Peer Review Committee on Physician Training Award in Preventive Medicine. American Cancer Society, Atlanta, Georgia. 2008–2012

Institute of Medicine of the National Academies of Sciences. Participant – GAO Workshop on Cancers Added to the World Trade Center Health Program (WTCHP) List of Covered Conditions. Washington, D.C. October 21, 2013.

Scientific Journal Board of Editors:

Journal of Occupational Medicine, Editorial Board. 1987-1992

Medical Journal of Indonesia, Editorial Board. 2000–present

Journal of Environmental and Public Health. 2009-2011

Reviewer, Scientific Manuscripts:

American Journal of Epidemiology
American Journal of Industrial Medicine
Chemosphere
Critical Reviews in Toxicology
Environmental Health Perspectives
Environmental Science and Technology
Epidemiology
Journal of Exposure Science and Environmental Epidemiology
Journal of Occupational and Environmental Medicine
Journal of the National Cancer Institute
Risk Analysis

Teaching

Attending Physician, Occupational Medicine Outpatient Clinic, University of Michigan Medical Center, Ann Arbor, Michigan, 1989-2011

Director, Occupational and Environmental Epidemiology Program, University of Michigan School of Public Health 2001-2007

Ph.D. Thesis Committee Member

N. Seixas, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1990

A. Rocskay, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1991

N. Nelson, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1992

Carol Burns. The epidemiology of systemic sclerosis: a population based case control study. Ph.D. in Epidemiologic Science, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1994

Jane Krebs. Mortality at an automotive stamping and assembly facility. Ph.D. in Epidemiologic Science, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1995. Doctoral Committee Co-Chair.

Jacqueline Kurtz. An evaluation of peer and professional trainers in an occupational health and safety training program. Ph.D. in Environmental and Industrial Health, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1995

Jon Fryzek. A case-control study of DDT and related compounds and pancreas cancer. Ph.D. in Epidemiologic Science, University of Michigan, School of Public Health, Ann Arbor, Michigan, 1996. Doctoral Committee Co-Chair.

Stephen Martin. 1,1 dichloro-2,2-bis(p-chlorophenyl)ethylene, testosterone levels and lipid profile in African American farmers and farm workers. University of Michigan, School of Public Health, Ann Arbor, Michigan, 2001.

Jeanette Jane Rainey. Epidemiological and environmental co-factors linked to endemic Burkitt's lymphoma in Kenya. Ph.D. in Epidemiologic Science, University of Michigan, School of Public Health, Ann Arbor, Michigan 2005

Gena Pauline Kucera. Hormone replacement therapy and nonsteroidal anti-inflammatory drugs on the risk of colorectal cancer in women. Ph.D. in Environmental and Industrial Health, University of Michigan, School of Public Health, Ann Arbor, Michigan, 2006. Doctoral Committee Chair.

Aaron Sussell. Incidence And Prevalence Of Occupational Contact Dermatitis In Automobile Manufacturing. PhD in Environmental Health Sciences, University of Michigan School of Public Health, 2007.

Andrea Steege. Access to health care among migrant farm workers. University of Michigan, School of Public Health, Ann Arbor, Michigan, 2009. Doctoral Committee Co-Chair.

Qixuan Chen. Bayesian Model Based Approach to Complex Survey Data Analysis. Department of Biostatistics, University of Michigan, School of Public Health, Ann Arbor, Michigan, 2009.

Committee, Organizational, and Volunteer Service

Director, Occupational Medicine, University of Michigan School of Public Health, Ann Arbor, Michigan, December 1988-94

Member, School of Public Health Executive Committee, University of Michigan, Ann Arbor, Michigan, 1989-1991.

Director, Center for Occupational Health, Safety, and Engineering, University of Michigan, Ann Arbor, Michigan, 1990-1995

Associate Director, Center for Occupational Health, Safety, and Engineering, University of Michigan, Ann Arbor, Michigan, 1995-2000

Director, Division of Occupational Health, University of Michigan School of Public Health.
1992 -1995

Member, Executive Committee, Department of Environmental and Industrial Health, University
of Michigan School of Public Health, Ann Arbor, MI. January 1992-1995.

Chair, Curriculum Committee, Department of Environmental and Industrial Health, University
of Michigan School of Public Health, 1996-97.

Chair, Advisory Committee on Academic Rank, University of Michigan School of Public
Health, 1997-99. Member 1996-97, 1999-00.

Member, Executive Committee, University of Michigan School of Public Health. 2000-2003.

Member, Student Recruitment Committee, Department of Environmental Health Sciences,
University of Michigan School of Public Health, 2001-03

Founding Director, Center for Risk Science and Communication, University of Michigan School
of Public Health, 2003-present

Member, Search Committee for Dean of University of Michigan School of Public Health, 2004-
05

Member, Executive Committee, University of Michigan School of Public Health, 2006-07

Member, Office of the Vice President for Research Conflict of Interest Committee, University of
Michigan, Ann Arbor, Michigan, 2009-2012

Member, Dean's Advisory Council, University of Michigan School of Public Health, 2012-
present

Visiting Professorships, Seminars, and Extramural Invited Presentations

1. "Colon Cancer and Job Activity." Invited Paper at Occupational Epidemiology Forum,
sponsored by USC, UCLA, and UC Irvine Schools of Medicine. Irvine, CA, 1983.
2. Annual Meeting of the Western Occupational Medical Association, "Pulmonary disease in
borax workers", San Francisco, California, 1982.
3. 4th Annual Rocky Mountain Conference on Occupational and Environmental Health,
"Respiratory symptoms from borax and boric acid aerosols", Park City, Utah, 1982.
4. American Occupational Medical Association Annual Meeting, "Occupational cancer", Los
Angeles, California, 1984.
5. "Respiratory Effects of Borax Dust." Invited Paper at Occupational Epidemiology Forum,
sponsored by USC, UCLA, and UC Irvine Schools of Medicine, Irvine, CA, 1984.
6. Panel Chairman. "Health Issues for Women in the Workplace." Annual Scientific
Meeting, American Occupational Medical Association, Los Angeles, CA, 1984.
7. "Occupational Cancer." Postgraduate Education Conference at the American Occupational
Medical Association Basic Curriculum Course, Salt Lake City, UT, 1984.
8. "Epidemiology for the Occupational Physician." Postgraduate Education Conference at the
Annual Scientific Meeting, American Occupational Medical Association, Los Angeles,
CA, 1984.

9. "Contact Dermatitis from Aziridine Hardener in Printing Ink." Invited Paper at Occupational Epidemiology Forum, sponsored by USC, UCLA, and UC Irvine Schools of Medicine, Irvine, CA, 1985.
10. Western Occupational Medical Association Conference, "Epidemiology of occupational cancer", Stanford University, Palo Alto, California, 1985.
11. "Toxicology." Workshop on evaluation of workers compensation patients exposed to hazardous chemicals. Postgraduate Education Conference. Presented by the State of California Division of Industrial Accidents and USC School of Medicine, Los Angeles, CA, 1985.
12. Special Studies Unit, Division of Occupational Safety and Health, Department of Industrial Relations, State of California, Sacramento, California, 1985.
13. V International Symposium, Epidemiology in Occupational Health, "Cancer mortality in the aircraft manufacturing industry", Los Angeles, California, 1986.
14. Epidemiology and cancer registries in the Pacific Basin V, "Cancer risks in the aircraft manufacturing industry", Kauai, Hawaii, 1986.
15. "Cancer Mortality in the Aircraft Manufacturing Industry." Invited Paper at Occupational Epidemiology Forum, sponsored by USC, UCLA, and UC Irvine Schools of Medicine, Irvine, CA, 1986.
16. "Occupational exposure to electromagnetic fields and adult leukemia." Invited Paper at Occupational Epidemiology Forum, sponsored by USC, UCLA, and UC Irvine Schools of Medicine, Irvine, CA 1987.
17. "Studies of electromagnetic fields and cancer risk." Seminar at Joint Symposium sponsored by Fred Hutchinson Cancer Research Center, University of Washington School of Medicine and Department of Preventive Medicine, USC. Seattle, WA, 1987.
18. "Electromagnetic fields and cancer risk," and "Exposure assessment in occupational and residential studies of ELF and leukemia." Invited lecturer, International Agency for Research on Cancer, Lyon, France, May 1988.
19. California Cancer Registries Conference 1988: Innovations in Research, "Coding and use of cancer registry data to look for occupational cancers", Newport Beach, California, October 1988.
20. 32nd Annual Western Occupational Health Conference, "When is cancer work related?", Irvine, California, October 1988.
21. "Toxicology of chrome." Invited guest, Aerospace Hazardous Waste Minimization Symposium, Los Angeles, CA, May 1988.
22. "Medical/Ethical Pitfalls of Occupational Medicine From a Clinicians Standpoint." Invited speaker, Southern California Edison Company, Oxnard, CA, July 1988.
23. "Prospective Study of Respiratory Effects of Formaldehyde in Medical Students". Invited speaker, UC Irvine, Department of Community and Environmental Medicine. October 20, 1988.
24. Invited lecturer, California Cancer Registries Conference 1988: Innovations in Research. Lecture topic: "Coding and Use of Cancer Registry Data to Look for Occupational Cancers", Newport Beach, California, October 1988.
25. Lecturer, "Physical Activity and Colon Cancer Risk", seminar sponsored by the University of Michigan, Ann Arbor, Michigan, September 1989
26. Chairperson, 41st Annual Selby Discussional, School of Public Health, University of Michigan, Ann Arbor, Michigan, September 1989

27. Lecturer, "Lung Disease in Borax Miners: Was Borax the Culprit?". School of Public Health, University of Michigan, Ann Arbor, Michigan, October 1989
28. Session Reporter, "Human Health Impacts of Halogenated Biphenyls and Related Compounds". University of Michigan, Ann Arbor, Michigan, November 8-9, 1989
29. Keynote Speaker, Joint Annual Meeting of The Michigan Occupational Medical Association, The Detroit Michigan Association of Occupational Health Nurses, and The Michigan Industrial Hygiene Society, "Electromagnetic Fields and Leukemia". Dearborn, Michigan, November 1989.
30. Lecturer, "Physical Activity and Colon Cancer". Ford World Headquarters, Dearborn, Michigan, January 1990.
31. Lecturer, "Multiple Chemical Sensitivities", press briefing at Dow-Elanco. Midland, Michigan, March 1990.
32. Speaker, "Man made mineral fibers and lung cancer". Presented at Pulmonary Division Grand Rounds, University of Michigan Medical Center, Ann Arbor, Michigan, December 7, 1990.
33. Speaker, "Epidemiologic study of end users of man-made mineral fiber". Report to Annual Scientific Session of the Thermal Insulation Manufacturers Association. Del Mar, California, October 30, 1990.
34. Conference Chairman, 42nd Annual Selby Discussional held at the University of Michigan, Ann Arbor, Michigan, November 8-9, 1990.
35. Invited speaker, "DDT and pancreas cancer". National Institute for Occupational Safety and Health, Cincinnati, Ohio, January 29, 1991.
36. Invited speaker, "Case control study of pancreas cancer among chemical manufacturing workers". University of Cincinnati School of Medicine, Department of Environmental Health Seminar Series. January 30, 1991.
37. Invited speaker, Epidemiologic studies of morbidity of man-made mineral fiber workers". In: Man-made mineral fibers: status of health risk assessment. Course given by the Department of Environmental Health Sciences, Johns Hopkins University School of Hygiene and Public Health. Baltimore, Maryland, March 4, 1991.
38. Invited speaker, "Electromagnetic fields and cancer". Annual meeting of the Semiconductor Industry Safety Association. Phoenix, Arizona, April 15, 1991.
39. Invited presentation, "DDT and pancreas cancer in a case control study of chemical workers." Society for Epidemiological Research Annual Meeting. Buffalo, New York, June 1991.
40. Conference Chairman, 43rd Annual Selby Discussional held at the University of Michigan, Ann Arbor, Michigan, November 1991.
41. Invited Faculty, National Cancer Institute, Division of Cancer Prevention and Control. 1992. Cancer Prevention and Control Academic Course. "Surveillance and special populations: occupations exposed to asbestos". August 7, 1992.
42. Conference Chairman, 44th Annual Selby Discussional held at the University of Michigan, Ann Arbor, Michigan, November 1992.
43. Invited speaker, Occupational Health Symposium Co-Sponsored by Bay Medical Education and the University of Michigan Center for Occupational Health and Safety. Saginaw, Michigan, March 12, 1993. "Occupational Cancers".
44. Invited speaker, Department of Epidemiology, University of Michigan Department of Epidemiology, March 18, 1993. "Recent Studies on EMF and Cancer".

45. Invited speaker, First Annual Cancer Conference. Recent Advances in Colorectal Carcinoma. Sponsored by the American Cancer Society, Detroit, Michigan, April 14, 1993. Epidemiology of Colorectal Cancer.
46. Conference Chairman, 45th Annual Selby Discussional held at the University of Michigan, Ann Arbor, Michigan, September 1993.
47. Invited speaker. Michigan State Medical Society Annual Meeting. "Electromagnetic Fields and Health". Detroit, Michigan, November 11, 1993.
48. Invited presentation. "Occupational exposures and urogenital cancers among leather workers". National Cancer Institute Workshop on Occupational Exposures and Urogenital Cancers. May 23-24, 1994, Rockville, Maryland.
49. Conference Chairman, 46th Annual Selby Discussional held at the University of Michigan, Ann Arbor, Michigan, October 13-14, 1994.
50. University of Michigan Comprehensive Cancer Center Grand Rounds. "DDT and Related Compounds and Pancreas Cancer. October 21, 1994.
51. Western Ohio Occupational Medical Association Annual Scientific Meeting. "Integration of Residents into Occupational Medicine Training". Toledo, Ohio, March 11-12, 1995.
52. Invited Speaker. BASF Corporation Isocyanates Review. Respiratory Disease from TDI and MDI. Wyandotte, Michigan, April 6, 1995.
53. Invited Speaker. Department of Public Health, Wellington School of Medicine. "DDT and pancreas cancer". July 28, 1995, Wellington, New Zealand.
54. Invited Speaker. First Annual Jakarta International Epidemiology Course. "Occupational Disease Epidemiology". December 4-15, Jakarta, Indonesia.
55. Invited Speaker. Faculty of Public Health, University of Indonesia. "Current Issues in Occupational Health". December 19, 1995, Depok, West Java, Indonesia.
56. Invited Speaker. Department of Cardiology, Faculty of Medicine, University of Indonesia. "Preparing an International Manuscript" April 9, 1996. National Cardiac Center, Harapan Kita Hospital, Jakarta, Indonesia.
57. Invited Speaker. Editorial Board of the Medical Journal of Indonesia. "Publishing in the International Medical Literature" April 9, 1996. University of Indonesia School of Medicine, Jakarta, Indonesia.
58. Invited Speaker. "Guidelines for Publishing in the International Medical Literature". May 21, 1996. Department of Internal Medicine Grand Rounds, University of Indonesia School of Medicine, Jakarta, Indonesia.
59. Invited Speaker. Symposium of Occupational Safety and Health to Anticipate the Era of Free Trade in the Year 2020. "Occupational Safety and Health in Developed Industrial Countries". May 23, 1996, University of Indonesia School of Medicine, Jakarta, Indonesia.
60. Invited Faculty, National Cancer Institute, Division of Cancer Prevention and Control. 1996 Cancer Prevention and Control Academic Course. "Special Populations and the Environment. High Risk Populations: Asbestos". August 9, 1996.
61. Invited Speaker. "Epidemiology of Pancreatic Neoplasia". Symposium: Current Concepts in Pancreas Cancer. Barbara Ann Karmanos Cancer Institute. Detroit, MI. September 12, 1997
62. Invited Speaker. "DDT and Related Materials and Pancreatic Cancer". NIEHS Center for Molecular and Cellular Toxicology, Wayne State University Institute of Chemical Toxicology. October 16, 1997.

63. Invited speaker. "Occupational Asthma". Symposium: Global Management of Airway Disease. University of Michigan Medical School, Division of Pulmonary and Critical Care Medicine. May 9, 1998 Livonia, Michigan.
64. Invited Speaker. "Occupational and Environmental Cancer". Annual Scientific Meeting of the Michigan Occupational and Environmental Medicine Association. September 11, 1998. Traverse City, Michigan
65. Invited Speaker. Epidemiology of Natural Rubber Latex Allergies in Health Care Workers. International Conference on Natural Rubber Latex Sensitivity. San Francisco, CA. Feb 9-10, 2001
66. Invited Speaker. Measurement of physical activity in the occupational setting. American Society for Preventive Oncology 25th Annual Meeting. New York City, NY. March 12, 2001.
67. Invited Speaker. XVI World Congress of Epidemiology. Montreal, Quebec. Risk of Solvent Exposure among Women with Scleroderma. August 20, 2002.
68. Invited Speaker. "Research studies of pesticide exposed populations." National Institute of Environmental Health Sciences, Division of Extramural Research and Training (DERT) Science Retreat. Wilmington, NC. November 21-22, 2002.
69. Invited presentation. Williams JM, Garabrant DH. Assessment of sight and hearing protection use in high school vocational, technical, and industrial education programs. Best Practices in Occupational Safety and Health, Education, Training and Communication. 6th International Conference, Scientific Committee on Education and Training in Occupational Health, ICOH. Baltimore, MD. October 28-30, 2002.
70. Invited presentation. Garabrant DH. Environmental and familial risks to pancreas cancer. University of Texas M.D. Anderson Cancer Center, Division of Cancer Prevention and Program in Cancer Prevention & Control. Houston, Texas. April 25, 2003.
71. Invited discussant. Garabrant DH. Manufacturing Science in Regulated Environments. Presented at the International Symposium on Development and Manufacturing Needs in Health Care Industries in the 21st Century. University of Michigan College of Engineering. Ann Arbor, Michigan September 19, 2003
72. Invited Speaker. Garabrant DH. 2003 Carey Pratt McCord Lecture. "Latex allergy in health care workers". Presented at the annual meeting of the Michigan Occupational and Environmental Medicine Association. Royal Oak, Michigan. November 6, 2003.
73. Invited Speaker. Garabrant DH. "The Michigan Dioxin Exposure Study". MidMichigan Medical Center-Midland Family Practice Department and Continuing Medical Education Department. Ann Arbor, Michigan. May 20, 2004.
74. Invited Speaker. Garabrant DH. "Biomarkers and Risk Assessment". Presented at the Association of Schools of Public Health Conference on Environmental Health Risk: Assessment, Management, and Communications. Minneapolis, Minnesota. July 11-13, 2004.
75. Keynote Speaker. Garabrant DH. "The University of Michigan Dioxin Exposure Study". Michigan Epidemiology Conference 2005. Ann Arbor, Michigan. March 11, 2005.
76. Invited Speaker. Garabrant DH. "Meta-Analysis as a Tool for Understanding Asbestos-Related Disease". Presented at the AIHce 2005 Annual Conference of the American Industrial Hygiene Association and American Conference of Governmental Industrial Hygienists. Anaheim, CA May 25, 2005

77. Invited Speaker. Garabrant DH. Mesothelioma risks among auto mechanics. Annual Scientific Meeting of the Michigan Occupational and Environmental Medicine Association. Lansing, MI. September 22, 2005.
78. Invited Speaker. Garabrant DH. "The University of Michigan Dioxin Exposure Study". Michigan's Premier Public Health Conference. Partnerships: Working Together to Improve the health of Michigan's Citizens. Michigan Association for Local Public Health. Grand Rapids, MI October 12, 2005
79. Moderator. Garabrant DH. Session IV Exposure Assessment. First Annual Air Toxics Research Workshop. Mickey Leland National Air Toxics Research Center. Houston, Texas. October 17, 2005.
80. Invited Speaker. Garabrant DH. Biomonitoring in Epidemiology Studies. Michigan Society of Toxicology Fall 2005 Meeting. Lansing, MI. November 4, 2005.
81. Invited speaker. DH Garabrant. Cohort mortality study of transmission and chassis workers. American Osteopathic College of Occupational and Preventive Medicine Mid-Year Conference. Pittsburgh, Pennsylvania. March 18, 2006.
82. Invited Speaker, Grand Rounds. Garabrant DH. Environmental and genetic factors in pancreas cancer. Department of Medicine, University of California, Irvine Medical Center, March 28, 2006.
83. Invited Presentation. Franzblau A, Garabrant D. The University of Michigan Dioxin Exposure Study: Project Overview. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
84. Invited Presentation. Olson K, Garabrant D. Prevalence of Exposure Routes in The University of Michigan Dioxin Exposure Study: Food Consumption, Recreational and Household Activities, Occupations and Demographics. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
85. Invited Presentation. Adriaens P, Garabrant D. Measurements of Soil Concentrations of PCDDs, PCDFs, and PCBs From a Community in Michigan, USA. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
86. Invited Presentation. Zwica L, Garabrant D. Measurements of Household Dust Concentrations of PCDDs, PCDFs, and PCBs From a Community in Michigan, USA. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
87. Invited Presentation. Hedgeman E, Garabrant D. Measurements of Serum Concentrations of PCDDs, PCDFs, and PCBs From a Community in Michigan, USA. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
88. Invited Presentation. Garabrant D. Environmental Factors That Explain Variation in Serum Dioxin Concentrations in a Community in Michigan, USA. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
89. Invited Presentation. Chang S-C, Garabrant D. Analysis of Patterns in PCDD, PCDF, and PCB Soil Concentrations From a Community in Michigan, USA. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
90. Invited Presentation. Lepkowski J, Garabrant D. Survey methodology in an environmental exposure study: methods to assure sound inference. Dioxin 2006 Conference, Oslo, Norway. August 21, 2006.
91. Invited Presentation. Garabrant D. Factors that predict serum dioxin concentrations in Michigan, USA. Dioxin 2007. Tokyo, Japan. September 3, 2007.

92. Invited Presentation. Chen Q, Garabrant D. Serum 2,3,7,8-TCDD concentration in a Michigan, USA population with no unusual sources of exposure. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
93. Invited Presentation. Knutson K, Garabrant D. Linear regression modeling to predict household dust TEQ and TCDD concentration. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
94. Invited Presentation. Hong B, Garabrant D. Impact of the changes in WHO TEF values from 1998 to 2005 on the total TEQ values in serum, household dust and soil. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
95. Invited Presentation. Franzblau A, Garabrant DH. Human exposure to dioxins from clay: a case report. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
96. Invited Presentation. Jolliet O, Garabrant D. Effect of age and historical intake on blood dioxin concentrations: pharmacokinetic modeling to support statistical analyses. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
97. Invited Presentation. Towey T, Garabrant, D. Multivariate statistical analysis of dioxin profiles to explain source contributions to serum dioxins. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
98. Invited Presentation. Trinh H, Garabrant D. spatial distribution of dioxins from an incinerator; a validation study. Dioxin 2007 Conference, Tokyo, Japan. September, 2007.
99. Invited Presentation. Garabrant DH. Biomonitoring Results from the University of Michigan Dioxin Exposure Study. The NAS and WHO on Dioxin and Dioxin-like Compounds: International Policy Implications and Potential Impact, Michigan State University, September 19, 2007.
100. Invited Presentation. Garabrant, DH. Factors that predict serum dioxin concentrations in Michigan, USA. 17th Annual Conference of the International Society for Exposure Assessment, Durham, NC. October 16, 2007.
101. Garabrant D. Effective messages in concerned communities: the dioxin exposure study. 2007 Bernstein Symposium. Nanotechnology and Health: Evidence and Impact. University of Michigan Risk Science Center. October 26, 2007.
102. Invited Presentation. Garabrant, DH. Factors that predict serum dioxin concentrations in Michigan, USA. Society for Risk Analysis 2007 Annual Meeting. San Antonio, TX, December 9-12, 2007..
103. Invited Presentation. Garabrant D. The University of Michigan Dioxin Exposure Study project overview. Society for Risk Analysis 2007 Annual Meeting. San Antonio, TX, December 9-12, 2007.
104. Invited Presentation. Garabrant D. Chlorpyrifos exposure, inhibition of butyrylcholinesterase, and paraoxonase (PON1) activity in pesticide manufacturing workers. EPICOH-NEUREOH 2008 Conference, San Jose, Costa Rica, June 11, 2008.
105. Invited Presentation. Jolliet O, Wenger Y, Adriaens P, Chang C-W, Chen Q, Franzblau A, Gillespie BW, Hedgeman E, Hong B, Jiang X, Knutson K, Lepkowski J, Milbrath MO, Reichert H, Towey T, Garabrant, D. Explaining age dependency using pharmacokinetic modeling in the analysis of blood TCDD concentrations. Dioxin 2008 Conference, Birmingham, England, August, 2008.
106. Invited Presentation. Garabrant DH. Project overview and results of linear regression models of serum dioxin levels. Dioxin 2008 Conference, Birmingham, England, August, 2008.

107. Invited presentation. Garabrant DH. Cancer Mortality among U.S. Automotive Transmission Manufacturing Workers Exposed to Metal Working Fluids,” 2008 MRF SYMPOSIUM. October 5-8, Dearborn, Michigan.
108. Invited Presentation. Jiang X, Chen Q, Garabrant D, Hong B, Gillespie B, Lepkowski J, Franzblau A, Adriaens P, Demond A. Logistic Regression Models of High Serum Dioxin Level. Dioxin 2009 Conference, Beijing, China, August 27, 2009.
109. Invited Presentation. Hong B, Garabrant D, Jiang X, Chen Q, Franzblau A, Gillespie B, Lepkowski J, Adriaens P, Demond A. Factors that Predict Serum Concentration of 2,3,7,8-TCDD in People from Michigan, USA. Dioxin 2009 Conference, Beijing, China, August 27, 2009.
110. Invited Presentation. Gillespie B, Reichert H, Chen Q, Franzblau A, Lepkowski J, Adriaens P, Demond A, Luksemburg W, Garabrant D. Estimating Population Percentiles Using the Turnbull Estimator When Some Data Are Below the Limit of Detection. Dioxin 2009 Conference, Beijing, China, August 27, 2009.
111. Invited Presentation. Garabrant D, Hong B, Jolliet O, Chen Q, Jiang X, Franzblau A, Lepkowski J, Adriaens P, Demond A, Hedgeman E, Knutson K, Towey T, Gillespie B. Public Health Impact of Dioxin Exposure Pathways in the UMDES, Based on Linear Regression Models. Dioxin 2009 Conference, Beijing, China, August 27, 2009..
112. Invited Presentation. Franzblau A, Hedgeman E, Jiang X, Chen Q, Hong B, Knutson K, Towey T, Adriaens P, Demond A, Gillespie B, Jolliet O, Lepkowski J, Garabrant D. The University of Michigan Dioxin Exposure Study: An Investigation of Serum Outliers for TEQ, 2,3,7,8-TCDD, 2,3,4,7,8-PeCDF, and PCB-126. Dioxin 2009 Conference, Beijing, China, August 27, 2009.
113. Invited Presentation. Franzblau A, Garabrant D, Gillespie B, Jiang X, Adriaens P, Demond A, Jolliet O, Lepkowski J. Implications of the EPA’s new preliminary remediation goals for residential soil based on the University of Michigan Dioxin Exposure Study. Dioxin 2010 Conference, San Antonio, Texas. September 12-16, 2010.
114. Invited Presentation. Garabrant D, Jiang X, Franzblau A, Adriaens P, Demond A, Gillespie B, Jolliet O, Lepkowski J, Hao W. The University of Michigan Dioxin Exposure Study: Relationship between residential soil, household dust, and serum dioxin levels. Dioxin 2010 Conference, San Antonio, Texas. September 12-16, 2010.
115. Invited Presentation. Hao W, Jolliet O, Jiang X, Garabrant D, Franzblau A, Adriaens P, Demond A, Gillespie B, Lepkowski J. The University of Michigan Dioxin Exposure Study: Dioxin intake due to fish and game consumption in a dioxin-contaminated area. Dioxin 2010 Conference, San Antonio, Texas. September 12-16, 2010.
116. Invited Presentation. Hao W, Jolliet O, Jiang X, Chang C-W, Towey T, Wenger Y, Garabrant D, Franzblau A, Adriaens P, Demond A, Gillespie B, Lepkowski J. The University of Michigan Dioxin Exposure Study: A pharmacokinetic modeling approach to investigate the predictors of serum TCDD concentration. Dioxin 2010 Conference, San Antonio, Texas. September 12-16, 2010.
117. Invited Presentation. Evidence of dioxin exposure in Michigan residents exposed to contaminated soils. The 37th Annual Summer Meeting of the Toxicology Forum. The Aspen Institute, Aspen, Colorado. July 12, 2011.
118. Invited Presentation. Garabrant DH. Improving measures in epidemiology: prospective cohort study of chlorpyrifos manufacturing workers. Symposium ILSI Argentina – ILSI HESI – SETAC Capitulo Argentino. Advances in Epidemiology: the impact of pesticides. September 28, 2011. Argentine Scientific Society, Buenos Aires, Argentina.

119. Invited Presentation. Garabrant DH. The University of Michigan Dioxin Exposure Study: Predictors of human serum dioxin concentrations in Midland and Saginaw Michigan. Society of Toxicology of Canada 43rd Annual Symposium. Montreal, Canada. December 4-6, 2011.
120. Invited Presentation. Franzblau A, Broadwater K, Luksemburg W, Maier M, Jiang X, Garabrant DH, Demond A. Serum Concentrations of Polychlorinated Dibenzo-p-dioxins Among Users of Ball Clay. Joint ISEE, ISES and ISIAQ Environmental Health Conference. 19-23 August 2013, Basel, Switzerland.
121. Invited presentation: Garabrant DH. Biomonitoring of chlorpyrifos excretion, butyryl cholinesterase activity, and acetyl cholinesterase activity among chlorpyrifos manufacturing workers. In: Use of spot biomonitoring samples for environmental epidemiology. International Society of Exposure Sciences 25th Annual Meeting. Henderson, NV October 22, 2015.
122. Invited presentation. Garabrant DH and Pastula SS. A comparison of asbestos fiber potency and elongate mineral particle (EMP) potency in humans. Monticello Conference. October 18, 2017. Charlottesville, Virginia.

Bibliography

Peer Reviewed Journals and Publications:

1. Peters JM, Wright WE, Garabrant DH. Occupational epidemiology: detection of cancer in the workplace. *West J Med* 1982; 137:555-559.
2. Bernstein RS, Sorenson WG, Garabrant DH, Reaux I, Keough B, Hunninghake G, Treitman M. Exposures to respirable airborne penicillium from a contaminated ventilation system: clinical, environmental, and epidemiological aspects. *Am Indus Hygiene Assoc J* 1983; 44:161-169.
3. Garabrant DH, Peters JM, Mack TM, Bernstein L. Job activity and colon cancer risk. *Am J Epidemiol* 1984; 119:1005-1014.
4. Garabrant DH, Peters JM, Bernstein L, Smith T. Respiratory and eye irritation from boron oxide and boric acid dusts. *J Occup Med* 1984; 26:584-586.
5. Garabrant DH, Wegman DH. Cancer mortality among shoe and leather workers in Massachusetts. *Am J Indust Med* 1984; 5:303-314.
6. Garabrant DH, Peters JM, Bernstein L, Smith T, Wright WE. Respiratory effects of borax dust. *Brit J Indust Med* 1985; 42:831-837.
7. Garabrant DH. Dermatitis to an aziridine hardening agent used in water based printing ink. *Contact Dermatitis* 1985; 12:209-212.
8. Peters JM, Garabrant DH, Wright WE, Bernstein L, Mack TM. Uses of a cancer registry to assess occupational cancer risks. *National Cancer Institute Monograph* 1985; 69:157-161.
9. Osorio AM, Bernstein L, Garabrant DH, Peters JM. Investigation of lung cancer among female cosmetologists. *J Occup Med* 1986; 28:291-295.
10. Froines JR, Garabrant DH. Quantitative evaluation of manicurists exposure to methyl, ethyl, and isobutyl methacrylate during production of synthetic fingernails. *App Indust Hyg* 1986; 1:70-74.
11. Garabrant DH, Fine LJ, Oliver C, Bernstein L, Peters JM. Abnormalities of pulmonary function and pleural disease among titanium metal production workers. *Scand J Work Health Environ* 1987; 13:47-51.

12. Kawamoto MM, Garabrant DH, Balmes JR, Fynboh R, Dimick DV, Simonowitz JA, Held J, Bernstein L. Respiratory effects of cotton dust exposure in the cotton ginning industry. *Am J Ind Med* 1987; 11:505-515.
13. Garabrant DH, Held J. Mortality study of aircraft manufacturing employees. *Scand J Work Health Environ* 1987; 13:170-171.
14. Peters JM, Garabrant DH, Preston-Martin S, Yu MC. Is trichloroethylene a human carcinogen? *Scand J Work Health Environ* 1987; 13:180.
15. Goldberg R, Garabrant DH, Peters JM, Simonowitz J. Excessive lead absorption resulting from exposure to lead naphthenate. *J Occup Med* 1987; 29:750-751.
16. Barone JA, Peters JM, Garabrant DH, Bernstein L, Krebsbach R. Smoking as a risk factor for noise-induced hearing loss. *J Occup Med* 1987; 29:741-745.
17. Preston-Martin S, Garabrant DH. Occupational risks for meningiomas of the CNS in Los Angeles County. *J Occup Med* 1988; 30:14-18.
18. Wright W, Bernstein L, Peters JM, Garabrant DH, Mack TM. Adenocarcinoma of the stomach and exposure to occupational dust. *Am J Epidemiol* 1988; 128:64-73.
19. Garabrant DH, Held JL, Langholz B, Bernstein L. Mortality of aircraft manufacturing workers in Southern California. *Am J Indust Med* 1988; 13:683-693.
20. Bowman JD, Garabrant DH, Sobel E, Peters JM. Exposures to extremely low frequency (ELF) electromagnetic fields in occupations with elevated leukemia rates. *App Indus Hyg* 1988; 3:189-194.
21. Goldberg R, Garabrant DH. Excessive lead absorption. *J Occup Med* 1988; 30:482.
22. Yu M, Mack TM, Garabrant DH, Peters JM. Tobacco, alcohol, diet, occupation, and carcinoma of the esophagus. *Cancer Research* 1988; 48:3843-3848.
23. Preston-Martin S, Peters JM, Yu MC, Garabrant DH, Bowman JD. Myelogenous leukemia and electric blanket use. *Bioelectromagnetics* 1988;9:207-213.
24. Ross RK, Bernstein L, Garabrant DH, Henderson BE. Avoidable non-dietary lifestyle risk factors for cancer. *Family Physician* 1988;38:153-160.
25. Uba G, Pachorek D, Bernstein J, Garabrant DH, Balmes JR, Wright WE. Prospective study of pulmonary function and symptoms among medical students exposed to formaldehyde. *Am J Indust Med* 1989;15:91-101.
26. Goldberg R, Bernstein L, Peters JM, Garabrant DH. Occupational fatalities in California, 1972-83. *Am J Indust Med* 1989;15:177-185.
27. Buckley JD, Robison LL, Swotinsky R, Garabrant DH, LeBeau M, Manchester P, Nesbit ME, Odom L, Peters JM, Woods WG, Hammond GD. Occupational exposures of parents of children with acute nonlymphocytic leukemia. A report from the Children's Cancer Study Group. *Cancer Research* 1989;49:4030-4037.
28. Hull C, Doyle E, Peters JM, Garabrant DH, Bernstein L, Preston-Martin S. Case-control study of lung cancer in Los Angeles County welders. *Am J Indust Med* 1989;16:103-112.
29. Peters RK, Garabrant DH, Yu M, Mack TM. A case-control study of occupational and dietary factors in colorectal cancer in young men by subsite. *Cancer Research* 1989;49:5459-5468.
30. Yu M, Garabrant DH, Huang TB, Henderson BE. Combustion products and other non-dietary risk factors for nasopharyngeal carcinoma in Guangzhou, China. *Int J Cancer* 1990; 45:1033-1039.
31. Coleman M, Cardis E, Ahlbom A, Aldrich T, Boyle P, Bracken D, Breyse P, Cabanes J, Cartwright R, Cox R, Feychting M, Floderus B, Garabrant D, Goldberg M, Heroux P, Knave B, Maddock B, Pearce N, Salzberg M, Saracci R, Savitz D, Silva M, Theriault G,

- Vineis P. Extremely low-frequency electric and magnetic fields and risk of human cancer. *Bioelectromagnetics* 1991; 11:91-99.
32. Ciccioni C, London SJ, Garabrant DH, Bernstein L, Phillips K, Peters JM. Occupational asbestos exposure and mesothelioma risk in Los Angeles County: Application of an occupational hazard survey job-exposure matrix. *Amer J Indust Med* 1991; 20:371-379.
 33. Garabrant DH, Held J, Langholz B, Peters JM, Mack TM. DDT and related compounds and risk of pancreas cancer. *J Nat Cancer Inst* 1992;84:764-771.
 34. Garabrant DH, Peters RK, Homa DM. Asbestos and colon cancer: lack of association in a large case control study. *Am J Epidemiology* 1992;135:843-853.
 35. Peters RK, Pike MC, Garabrant DH, and Mack TM. Diet and colon cancer in Los Angeles County, California. *Cancer Causes and Control* 3:1992;457-473.
 36. Garabrant DH, Held J, Homa D. DDT and pancreatic cancer. *J. National Cancer Institute* 1993;85:328-329.
 37. Homa DM, Garabrant DH, Gillespie B. A meta-analysis of colorectal cancer and asbestos exposure. *Amer J Epidemiol* 1994;139: 1210-1222.
 38. London SJ, Bowman JD, Sobel E, Thomas DC, Garabrant DH, Pearce N, Bernstein L, Peters JM. Exposure to magnetic fields among electrical workers in relation to leukemia risk in Los Angeles County. *Amer J Indust Med* 1994;26:47-60.
 39. Patellos MC, Garabrant DH. Occupational cancer. *Primary Care Clinics*. 1994; 21 vol 2: 329-348.
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Abstracts

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Resources, LLC

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December 13, 2020

To Whom it may concern:

Re: Objection to Air Emissions Standards in Kern County Environmental Impact Report (EIR)

Introduction

The air emission standards and fees in the original Kern County EIR and now the Supplemental Recirculated Environmental Impact Report must be based on science, readily available technology and facts – instead of conjecture and uncertain speculation. The comments and objections stated below address these issues and must be considered and addressed by Kern County in the current SREIR process for the Kern County oil and gas local permitting process to have meaningful integrity, reliability and veracity for the public as well as the industry.

History

On November 9, 2015, the Kern County Board of Supervisors unanimously approved amendments to Title 19 of the Kern County Zoning Ordinance (2015-C) to provide, among other things, a streamlined permitting process for certain oil and gas operations. This permitting process survived until February 25, 2020 when the Appellate Court issued an opinion that upheld the adequacy of the certified EIR except for “five areas in which the EIR did not comply with CEQA”. On March 25, 2020, the certification was set aside, Kern County stopped processing any permits and is now in the process of attempting to satisfy the five areas identified by the Court.

Although the adoption of Ordinance 2015-C was the culmination of a long process of meetings, debate, etc. with many parties, and generally was positive for the oil and gas industry, one key result of the original EIR process was seriously flawed. However, this was not identified by the Appellate Court as a problem that required repair. This issue relates to an inaccurate calculation of air emission quantities purportedly generated by certain oil and gas operations and, consequentially, the fees associated with these emissions. The proposed emission fees and criteria established for payment were negotiated between Kern County and a limited number of large oil companies, whose agenda was to lower the costs of emission fees for themselves related to drilling and producing shallow wells. These shallow wells comprised the substantial majority of these companies’ production. There was at best minimal discussion or consultation with independent oil and gas companies and other stakeholders regarding the calculations and consequences thereof, and once the air emission fee “schedule” was published and provided as part of Ordinance 2015-

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C, it was a fait accompli. The large majority of the affected parties were offered **no** seat at the table during the negotiations.

The air emission fees are **egregious** and without doubt do not reflect the actual amounts of air emissions generated by drilling and production operations. In hindsight, they appear to be “political capital” that was used as a tool to push through Ordinance 2015-C and in the process establish a revenue base for numerous Kern County agencies. Secondly, no consideration was given to credits for effective mitigation of air emissions. Lastly, over the three-year period that the fees were in effect, they were increased by almost 40% with no explanation or basis to justify such escalation.

Air Emissions

All oil and gas producers operating in Kern County are willing to pay their fair share of the costs associated with actual air emissions caused by their drilling and production operations. However, no oil and gas producer should be subjected to arbitrary fees that are not commensurate with actual emissions generated or the timing of these emissions.

In addition to the arbitrary and spurious calculations imposed by the County that bear no rational relationship with actual air emissions generated by oil and gas drilling and production operations, the most appalling and unreasonable feature of the fees is that they are based on a hypothetical 30-year future production scenario and are required to be paid **in full in advance**. This approach fails entirely to take into consideration the reality of oil and gas drilling and producing operations, the likelihood of unsuccessful or non-commercial wells or wells that produce only for a short or medium length term. Further, in the event of a non-commercial well or a shorter-lived well, there is no mechanism to recover payments which have been advanced in **total** for air emissions not realized. We are unaware of any County or other governmental agency, including SJVAPCD that demands money upfront from any industry for future air emissions that may never occur.

As part of Ordinance 2015-C, certain fee schedules were developed for three discrete regions within Kern County (*see attached*). The fees in these schedules are based on the “footage” for an applicable well. Again, these fees are entirely arbitrary and are not calculated on either a factual or linear basis. At certain depth thresholds, the fees increase almost exponentially. There is no scientific or real-world justification for this. It is true that during the relatively short drilling phase of the well, the drilling of a deeper well generates more air emissions than drilling of a shallower well due solely to the amount of time that the drilling rig and other services are engaged in these operations. However, in relation to the overall emission fees projected for the life of the well, these operations are relatively insignificant. This does not support the large discrepancy in emission fees between shallower and deeper wells. The air emissions produced subsequent to the drilling phase of a deeper well over a 30-year period (which projected emissions constitute the largest component of the fee) are no greater than those from a shallow well, in fact in many cases the shallow wells (most of which are operated under steam flood) require more servicing than deep, conventional wells and therefore generate more air emissions.

Another onerous element associated with Ordinance 2015-C is the rate of escalation of the air emission fees. From 2017 to 2020, these fees have escalated by nearly 40%, rising from \$7,231 per ton in 2017 to \$10,025 per ton in 2020. No justification for this inflated rate has been provided to the industry. The cost of air emission impacts has not materially increased during this period, and most assuredly these escalations do not even closely represent the rate of economic inflation, which has been less than 2% per year.

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Air Emission Mitigation Credits

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No specific provision has been made in Ordinance 2015-C for the receipt of credits for mitigations implemented by oil and gas operators to reduce air emissions. The air emission fee has been calculated, although not on any verifiable scientific basis, on unsubstantiated projections and guesswork regarding air emissions that might be produced from operations, including cost assumptions for the following causes of emissions: (i) fuel usage related to drilling, service and production equipment; (ii) transportation of hydrocarbons; (iii) dust generation; and (iv) others. For both economic and regulatory compliance considerations, most oil and gas operators expend considerable capital in an effort to mitigate these emissions. These mitigation measures include, but are not limited to, the purchase and use of electric or natural gas motors, installation of pipelines for transport of oil, gas and water, elimination of natural gas flaring, maintenance of roads and other control measures to reduce dust, among others. The costs of mitigation of air emissions resulting from the implementation of these measures should be applied as a credit to the air emissions fees being charged, as they are in virtually every other industry in the U.S. Over the past year, Grapevine Energy submitted a number of requests (offering substantial detailed back-up) to the SJVAPCD for mitigation credits. These submissions were completely ignored and our request was dropped when the Appellate Court invalidated the original Kern County Ordinance.

Conclusion

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Given the Fifth District Court of Appeal ruling on February 25, 2020 that directed the Superior Court to set aside certification of Ordinance 2015-C and amendments thereto, we believe we now have standing to demand a complete and comprehensive review and re-calculation of the air emission fees and the procedures and timing of their implementation, so that they will be **fact-based** (i.e., reflective of the estimated actual amounts of air emissions generated) and **equitable** for all stakeholders. The oil and gas industry should not be subject to a punitive fee schedule which is artificially escalated on a yearly basis and does not represent the true cost of air emissions. Fees should be chargeable on a year-by-year basis for air emissions that actually occur during the productive life of a well. This approach has been used by the SJVAPCD for decades and there is no reason why the County cannot adopt a similar procedure. This approach has been used by the SJVAPCD for decades and there is no reason why the County cannot adopt a similar procedure. We have conducted our own internal scientific-based analysis as to the quantity of air emissions we generate, and the oil and gas industry as a whole, in concert with SJVAPCD, is capable of engaging in similar studies and providing the resulting fact-based data to the governing agencies.

Finally, detailed procedures need to be established regarding both the nature and application of air emission mitigation credits. Our initial attempts to request credits for reduced air emissions as a result of production enhancements resulting in air emission reductions were stonewalled for months and ultimately dropped by the SJVAPCD.

Western Zone Air Emission Fees																	
Measured Well Depth	2017 Base Fee Western Zone	2017 APCD Fee	2017 Total Western Fees	2018 Base Fee Western Zone	2018 APCD Fee	2018 Total Western Fees	Increased Fees Over 2017	2019 Base Fee Western Zone	2019 APCD Fee	2019 Total Western Fees	Increased Fees Over 2018	2020 Base Fee Western Zone	2020 APCD Fee	2020 Total Western Fees	Increased Fees Over 2019	Increased fees from inception	% Increase from
Up to 1000	\$9,255.68	\$370.23	\$9,625.91	\$10,397.44	\$415.90	\$10,813.34	\$1,187.43	\$11,635.20	\$465.41	\$12,100.61	\$1,287.27	\$12,832.00	\$513.28	\$13,345.28	\$1,244.67	\$3,719.37	39%
Up to 2000	\$10,991.12	\$439.64	\$11,430.76	\$12,346.96	\$493.88	\$12,840.84	\$1,410.08	\$13,816.80	\$552.67	\$14,369.47	\$1,528.63	\$15,238.00	\$609.52	\$15,847.52	\$1,478.05	\$4,416.76	39%
Up to 3000	\$12,871.18	\$514.85	\$13,386.03	\$14,458.94	\$578.36	\$15,037.30	\$1,651.27	\$16,180.20	\$647.21	\$16,827.41	\$1,790.11	\$17,844.50	\$713.78	\$18,558.28	\$1,730.87	\$5,172.25	39%
Up to 4000	\$14,678.93	\$587.16	\$15,266.09	\$16,489.69	\$659.59	\$17,149.28	\$1,883.19	\$18,452.70	\$738.11	\$19,190.81	\$2,041.53	\$20,350.75	\$814.03	\$21,164.78	\$1,973.97	\$5,898.69	39%
Up to 5000	\$16,992.85	\$679.71	\$17,672.56	\$19,089.05	\$763.56	\$19,852.61	\$2,180.05	\$21,361.50	\$854.46	\$22,215.96	\$2,363.35	\$23,558.75	\$942.35	\$24,501.10	\$2,285.14	\$6,828.54	39%
Up to 6000	\$28,779.38	\$1,151.18	\$29,930.56	\$32,329.54	\$1,293.18	\$33,622.72	\$3,692.16	\$36,178.20	\$1,477.13	\$37,655.33	\$4,032.61	\$39,899.50	\$1,595.98	\$41,495.48	\$3,840.15	\$11,564.92	39%
Up to 7000	\$32,901.05	\$1,315.04	\$34,216.09	\$36,959.64	\$1,478.39	\$38,438.03	\$4,221.94	\$41,359.50	\$1,654.38	\$43,013.88	\$4,575.85	\$45,613.75	\$1,824.55	\$47,438.30	\$4,424.42	\$13,222.21	39%
Up to 8000	\$38,758.16	\$1,550.33	\$40,308.49	\$42,539.28	\$1,741.57	\$44,280.85	\$3,972.36	\$48,722.40	\$1,948.90	\$50,671.30	\$6,390.45	\$53,734.00	\$2,149.36	\$55,883.36	\$5,212.06	\$15,574.87	39%
Up to 9000	\$44,615.27	\$1,784.61	\$46,399.88	\$50,118.91	\$2,004.76	\$52,123.67	\$5,723.79	\$56,085.30	\$2,243.41	\$58,328.71	\$6,205.04	\$61,854.25	\$2,474.17	\$64,328.42	\$5,999.71	\$17,928.54	39%
Up to 10000	\$54,015.57	\$2,160.62	\$56,176.19	\$60,678.81	\$2,427.15	\$63,105.96	\$6,929.77	\$67,902.30	\$2,716.09	\$70,618.39	\$7,512.43	\$74,886.75	\$2,995.47	\$77,882.22	\$7,263.83	\$21,706.03	39%
Up to 11000	\$102,535.58	\$4,101.42	\$106,637.00	\$115,184.14	\$4,607.37	\$119,791.51	\$13,154.51	\$128,896.20	\$5,155.85	\$134,052.05	\$14,260.54	\$142,154.50	\$5,686.18	\$147,840.68	\$13,788.63	\$41,203.68	39%
Up to 12000	\$119,745.36	\$4,789.81	\$124,535.17	\$134,516.88	\$5,380.68	\$139,897.56	\$15,362.39	\$150,530.40	\$6,021.22	\$156,551.62	\$16,654.06	\$166,014.00	\$6,640.56	\$172,654.56	\$16,102.94	\$48,119.39	39%
Up to 13000	\$136,304.35	\$5,452.17	\$141,756.52	\$153,118.55	\$6,124.74	\$159,243.29	\$17,486.77	\$171,346.50	\$6,853.86	\$178,200.36	\$18,957.07	\$188,971.25	\$7,558.85	\$196,530.10	\$18,329.74	\$54,773.58	39%
Up to 14000	\$159,860.48	\$6,386.42	\$166,246.90	\$179,355.84	\$7,174.23	\$186,530.07	\$20,483.17	\$200,707.20	\$8,028.29	\$208,735.49	\$22,205.42	\$221,352.00	\$8,854.08	\$230,206.08	\$21,470.59	\$64,159.18	39%
Up to 15000	\$187,138.28	\$7,485.53	\$194,623.81	\$210,223.24	\$8,408.93	\$218,632.17	\$24,008.36	\$235,249.20	\$9,409.97	\$244,659.17	\$26,027.00	\$259,447.00	\$10,377.88	\$269,824.88	\$25,165.71	\$75,201.07	39%
Up to 16000	\$243,467.77	\$9,738.71	\$253,206.48	\$273,501.41	\$10,940.06	\$284,441.47	\$31,234.99	\$306,060.30	\$12,242.41	\$318,302.71	\$33,861.24	\$337,541.75	\$13,501.67	\$351,043.42	\$32,740.71	\$97,836.94	39%
Up to 17000	\$288,950.76	\$11,558.03	\$300,508.79	\$324,595.08	\$12,963.80	\$337,578.88	\$37,070.09	\$363,236.40	\$14,529.46	\$377,765.86	\$40,186.98	\$400,599.00	\$16,023.96	\$416,622.96	\$38,857.10	\$116,114.17	39%
Up to 18000	\$345,931.04	\$13,837.24	\$359,768.28	\$388,604.32	\$15,544.17	\$404,148.49	\$44,380.21	\$434,865.60	\$17,394.62	\$452,260.22	\$48,111.73	\$479,596.00	\$19,183.84	\$498,779.84	\$46,519.62	\$139,011.56	39%
Up to 19000	\$415,854.81	\$16,634.19	\$432,489.00	\$467,153.73	\$18,686.15	\$485,839.88	\$53,350.88	\$522,765.90	\$20,910.64	\$543,676.54	\$57,836.66	\$576,537.75	\$23,061.51	\$599,599.26	\$55,922.72	\$167,110.26	39%
Up to 20000	\$504,434.56	\$20,177.38	\$524,611.94	\$506,660.48	\$22,666.42	\$529,326.90	\$4,714.96	\$634,118.40	\$25,364.74	\$659,483.14	\$130,156.24	\$699,344.00	\$27,973.76	\$727,317.76	\$67,834.62	\$202,705.82	39%
Up to 21000	\$642,908.21	\$25,716.33	\$668,624.54	\$724,215.93	\$28,888.64	\$753,104.57	\$84,480.03	\$808,191.90	\$32,327.68	\$840,519.58	\$87,415.01	\$891,322.75	\$35,652.91	\$926,975.66	\$86,456.08	\$258,351.12	39%
Up to 22000	\$784,201.95	\$31,368.08	\$815,570.03	\$880,939.35	\$35,237.57	\$916,176.92	\$100,606.89	\$985,810.50	\$39,437.42	\$1,025,247.92	\$109,071.00	\$1,087,211.25	\$43,488.45	\$1,130,699.70	\$105,451.78	\$315,129.67	39%
Up to 23000	\$957,601.33	\$38,304.05	\$995,905.38	\$1,075,728.89	\$43,029.16	\$1,118,758.05	\$122,852.67	\$1,203,788.70	\$48,151.55	\$1,251,940.25	\$133,182.20	\$1,327,610.75	\$53,104.43	\$1,380,715.18	\$128,774.93	\$384,809.80	39%
Up to 24000	\$1,167,878.81	\$46,715.15	\$1,214,593.96	\$1,311,945.73	\$52,477.83	\$1,364,423.56	\$149,829.60	\$1,468,125.90	\$58,725.04	\$1,526,850.94	\$162,427.38	\$1,619,137.75	\$64,765.51	\$1,683,903.26	\$157,052.32	\$469,309.30	39%
>24000	\$1,430,291.80	\$57,211.67	\$1,487,503.47	\$1,606,729.40	\$64,269.18	\$1,670,998.58	\$183,495.11	\$1,798,002.00	\$71,920.08	\$1,869,922.08	\$198,923.50	\$1,982,945.00	\$79,317.80	\$2,062,262.80	\$192,340.72	\$574,759.33	39%

Central Zone Air Emission Fees

Measured Well Depth	2017 Base Fee Central Zone	2017 APCD Fee	2017 Total Central Fees	2018 Base Fee Central Zone	2018 APCD Fee	2018 Total Central Fees	Increased Fees Over 2017	2019 Base Fee Central Zone	2019 APCD Fee	2019 Total Central Fees	2020 Base Fee Central Zone	2020 APCD Fee	2020 Total Central Fees	Increased Fees Over 2018	Increased Fees From Inception	% Increase from Inception
Up to 1000	\$11,786.53	\$471.46	\$12,257.99	\$13,240.49	\$529.62	\$13,770.11	\$1,512.12	\$14,816.70	\$592.67	\$15,409.37	\$16,340.75	\$653.63	\$16,994.38	\$1,585.01	\$4,736.39	39%
Up to 2000	\$14,028.14	\$561.13	\$14,589.27	\$15,758.62	\$630.34	\$16,388.96	\$1,799.69	\$17,634.60	\$705.38	\$18,339.98	\$19,448.50	\$777.94	\$20,226.44	\$1,951.02	\$5,637.17	39%
Up to 3000	\$16,414.37	\$656.57	\$17,070.94	\$18,439.21	\$737.57	\$19,176.78	\$2,105.84	\$20,634.30	\$825.37	\$21,459.67	\$22,756.75	\$910.27	\$23,667.02	\$2,282.89	\$6,596.08	39%
Up to 4000	\$18,728.29	\$749.13	\$19,477.42	\$21,038.57	\$841.54	\$21,880.11	\$2,402.69	\$23,543.10	\$941.72	\$24,484.82	\$25,964.75	\$1,038.59	\$27,003.34	\$2,604.71	\$7,525.92	39%
Up to 5000	\$21,982.24	\$879.29	\$22,861.53	\$24,693.92	\$987.76	\$25,681.68	\$2,820.15	\$27,633.60	\$1,105.34	\$28,738.94	\$30,476.00	\$1,219.04	\$31,695.04	\$3,057.26	\$8,833.51	39%
Up to 6000	\$34,781.11	\$1,391.24	\$36,172.35	\$39,071.63	\$1,562.87	\$40,634.50	\$4,462.15	\$43,722.90	\$1,748.92	\$45,471.82	\$48,220.25	\$1,928.81	\$50,149.06	\$4,837.32	\$13,976.71	39%
Up to 7000	\$39,842.81	\$1,593.71	\$41,436.52	\$44,757.73	\$1,790.31	\$46,548.04	\$5,111.52	\$50,085.90	\$2,003.44	\$52,089.34	\$55,237.75	\$2,209.51	\$57,447.26	\$5,541.30	\$16,010.74	39%
Up to 8000	\$47,146.12	\$1,885.84	\$49,031.96	\$52,961.96	\$2,116.48	\$55,080.44	\$6,048.48	\$59,266.80	\$2,370.67	\$61,637.47	\$65,363.00	\$2,614.52	\$67,977.52	\$6,557.03	\$16,945.56	39%
Up to 9000	\$54,449.43	\$2,177.98	\$56,627.41	\$62,166.19	\$2,446.65	\$64,612.84	\$7,985.43	\$68,447.70	\$2,737.91	\$71,185.61	\$75,448.25	\$3,019.53	\$78,467.78	\$6,572.77	\$21,840.37	39%
Up to 10000	\$66,235.96	\$2,649.44	\$68,885.40	\$74,406.68	\$2,976.27	\$77,382.95	\$8,497.55	\$83,264.40	\$3,330.58	\$86,594.98	\$91,829.00	\$3,673.16	\$95,502.16	\$9,212.03	\$26,616.76	39%
Up to 11000	\$117,214.51	\$4,688.58	\$121,903.09	\$131,673.83	\$5,266.95	\$136,940.78	\$15,037.69	\$147,348.90	\$5,893.96	\$153,242.86	\$162,505.25	\$6,500.21	\$169,005.46	\$16,302.08	\$47,102.37	39%
Up to 12000	\$137,822.86	\$5,512.91	\$143,335.77	\$154,824.38	\$6,192.98	\$161,017.36	\$17,681.59	\$173,255.40	\$6,930.22	\$180,185.62	\$191,076.50	\$7,643.06	\$198,719.56	\$19,168.26	\$55,383.79	39%
Up to 13000	\$158,141.97	\$6,325.68	\$164,467.65	\$177,650.01	\$7,106.00	\$184,756.01	\$20,288.36	\$198,798.30	\$7,951.93	\$206,750.23	\$219,246.75	\$8,769.87	\$228,016.62	\$21,994.22	\$63,548.97	39%
Up to 14000	\$186,342.87	\$7,453.71	\$193,796.58	\$209,329.71	\$8,373.19	\$217,702.90	\$23,906.32	\$234,249.30	\$9,369.97	\$243,619.27	\$258,344.25	\$10,333.77	\$268,678.02	\$25,916.37	\$74,881.44	39%
Up to 15000	\$219,605.47	\$8,784.22	\$228,389.69	\$246,695.51	\$9,867.82	\$256,563.33	\$28,173.64	\$276,063.30	\$11,042.53	\$287,105.83	\$304,459.25	\$12,178.37	\$316,637.62	\$30,542.50	\$88,247.93	39%
Up to 16000	\$283,672.13	\$11,346.89	\$295,019.02	\$318,665.29	\$12,476.61	\$331,141.90	\$36,122.88	\$356,600.70	\$14,264.03	\$370,864.73	\$393,280.75	\$15,731.23	\$409,011.98	\$39,722.83	\$113,992.96	39%
Up to 17000	\$338,266.18	\$13,530.65	\$351,796.83	\$379,993.94	\$15,199.76	\$395,193.70	\$43,396.87	\$425,230.20	\$17,009.21	\$442,239.41	\$468,969.50	\$18,758.78	\$487,728.28	\$47,045.71	\$135,931.45	39%
Up to 18000	\$406,816.06	\$16,272.64	\$423,088.70	\$456,999.98	\$18,280.00	\$475,279.98	\$52,191.28	\$511,403.40	\$20,456.14	\$531,859.54	\$564,006.50	\$22,560.26	\$586,566.76	\$56,579.56	\$163,478.06	39%
Up to 19000	\$490,695.66	\$19,627.83	\$510,323.49	\$551,226.78	\$22,049.07	\$573,275.85	\$62,952.36	\$616,847.40	\$24,673.90	\$641,521.30	\$680,296.50	\$27,211.86	\$707,508.36	\$68,245.45	\$197,184.87	39%
Up to 20000	\$597,063.67	\$23,882.55	\$620,946.22	\$670,716.11	\$26,828.64	\$697,544.75	\$76,598.53	\$750,561.30	\$30,022.45	\$780,583.75	\$827,764.25	\$33,110.57	\$860,874.82	\$83,039.00	\$239,928.60	39%
Up to 21000	\$756,724.15	\$30,268.97	\$786,993.12	\$850,071.95	\$34,002.88	\$884,074.83	\$97,081.71	\$951,268.50	\$38,050.74	\$989,319.24	\$1,049,116.25	\$41,964.65	\$1,091,080.90	\$105,244.41	\$304,087.78	39%
Up to 22000	\$924,989.52	\$36,999.58	\$961,989.10	\$1,039,094.16	\$41,563.77	\$1,080,657.93	\$118,668.83	\$1,162,792.80	\$46,511.71	\$1,209,304.51	\$1,282,398.00	\$51,295.92	\$1,333,693.92	\$128,646.58	\$371,704.82	39%
Up to 23000	\$1,131,579.19	\$45,263.17	\$1,176,842.36	\$1,271,168.27	\$50,846.73	\$1,322,015.00	\$145,172.64	\$1,422,494.10	\$56,899.76	\$1,479,393.86	\$1,568,812.25	\$62,754.49	\$1,631,566.74	\$157,378.86	\$454,724.38	39%
Up to 24000	\$1,382,784.13	\$55,311.37	\$1,438,095.50	\$1,553,361.29	\$62,134.45	\$1,615,495.74	\$177,400.24	\$1,738,280.70	\$69,531.23	\$1,807,811.93	\$1,917,080.75	\$76,683.23	\$1,993,763.98	\$192,316.19	\$555,668.48	39%
>24000	\$1,695,741.81	\$67,829.67	\$1,763,571.48	\$1,904,924.73	\$76,196.99	\$1,981,121.72	\$217,550.24	\$2,131,695.90	\$85,267.84	\$2,216,963.74	\$2,350,962.75	\$94,038.51	\$2,445,001.26	\$235,842.02	\$681,429.78	39%

Eastern Zone Air Emission Fees																
Measured Well Depth	2017 Base Fee Eastern Zone	2017 APCD Fee	2017 Total Eastern Fees	2018 Base Fee Eastern Zone	2018 APCD Fee	2018 Total Eastern Fees	Increased Fees Over 2017	2019 Base Fee Eastern Zone	2019 APCD Fee	2019 Total Eastern Fees	Increased Fees Over 2018	2020 Base Fee Eastern Zone	2020 APCD Fee	2020 Total Eastern Fees	Increased Fees From Inception	% Increase from Inception
Up to 1000	\$6,941.76	\$277.67	\$7,219.43	\$7,798.08	\$311.92	\$8,110.00	\$890.57	\$8,726.40	\$349.06	\$9,075.46	\$965.46	\$9,624.00	\$384.96	\$10,008.96	\$2,789.53	39%
Up to 2000	\$8,315.65	\$332.63	\$8,648.28	\$9,341.45	\$373.66	\$9,715.11	\$1,066.83	\$10,453.50	\$418.14	\$10,871.64	\$1,156.53	\$11,528.75	\$461.15	\$11,989.90	\$3,341.62	39%
Up to 3000	\$9,906.47	\$396.26	\$10,302.73	\$11,128.51	\$445.14	\$11,573.65	\$1,270.92	\$12,453.30	\$498.13	\$12,951.43	\$1,377.78	\$13,734.25	\$549.37	\$14,283.62	\$3,980.89	39%
Up to 4000	\$11,352.67	\$454.11	\$11,806.78	\$12,753.11	\$510.12	\$13,263.23	\$1,456.46	\$14,271.30	\$570.85	\$14,842.15	\$1,578.92	\$15,739.25	\$629.57	\$16,368.82	\$4,562.04	39%
Up to 5000	\$13,015.80	\$520.63	\$13,536.43	\$14,621.40	\$584.86	\$15,206.26	\$1,669.83	\$16,362.00	\$654.48	\$17,016.48	\$1,810.22	\$18,045.00	\$721.80	\$18,766.80	\$5,230.37	39%
Up to 6000	\$24,079.23	\$963.17	\$25,042.40	\$27,049.59	\$1,081.98	\$28,131.57	\$3,089.17	\$30,269.70	\$1,210.79	\$31,480.49	\$3,348.92	\$33,383.25	\$1,335.33	\$34,718.58	\$9,676.18	39%
Up to 7000	\$27,550.11	\$1,102.00	\$28,652.11	\$30,948.63	\$1,237.95	\$32,186.58	\$3,534.47	\$34,632.90	\$1,385.32	\$36,018.22	\$3,831.64	\$38,195.25	\$1,527.81	\$39,723.06	\$11,070.95	39%
Up to 8000	\$32,467.19	\$1,298.69	\$33,765.88	\$36,472.27	\$1,458.89	\$37,931.16	\$4,165.28	\$40,814.10	\$1,632.56	\$42,446.66	\$4,515.50	\$45,012.25	\$1,800.49	\$46,812.74	\$13,046.86	39%
Up to 9000	\$37,311.96	\$1,492.48	\$38,804.44	\$41,914.68	\$1,676.59	\$43,591.27	\$4,786.83	\$46,904.40	\$1,876.18	\$48,780.58	\$5,189.31	\$51,729.00	\$2,069.16	\$53,798.16	\$14,993.72	39%
Up to 10000	\$45,049.13	\$1,801.97	\$46,851.10	\$50,806.29	\$2,024.25	\$52,830.54	\$5,779.44	\$56,630.70	\$2,265.23	\$58,895.93	\$6,265.39	\$62,455.75	\$2,498.23	\$64,953.98	\$18,102.88	39%
Up to 11000	\$91,906.01	\$3,676.24	\$95,582.25	\$103,243.33	\$4,129.73	\$107,373.06	\$11,790.81	\$115,533.90	\$4,621.36	\$120,155.26	\$12,782.20	\$127,417.75	\$5,096.71	\$132,514.46	\$36,932.21	39%
Up to 12000	\$106,801.87	\$4,272.07	\$111,073.94	\$119,976.71	\$4,799.07	\$124,775.78	\$13,701.84	\$134,259.30	\$5,370.37	\$139,629.67	\$14,853.89	\$148,069.25	\$5,922.77	\$153,992.02	\$42,918.08	39%
Up to 13000	\$120,685.39	\$4,827.42	\$125,512.81	\$135,572.87	\$5,422.91	\$140,995.78	\$15,482.97	\$151,712.10	\$6,068.48	\$157,780.58	\$16,784.80	\$167,317.25	\$6,692.69	\$174,009.94	\$48,497.13	39%
Up to 14000	\$140,787.57	\$5,631.50	\$146,419.07	\$158,154.81	\$6,326.19	\$164,481.00	\$18,061.93	\$176,982.30	\$7,079.29	\$184,061.59	\$19,580.59	\$195,186.75	\$7,807.47	\$202,994.22	\$56,575.15	39%
Up to 15000	\$164,288.32	\$6,571.53	\$170,859.85	\$184,554.56	\$7,382.18	\$191,936.74	\$21,076.89	\$206,524.80	\$8,260.99	\$214,785.79	\$22,849.05	\$227,768.00	\$9,110.72	\$236,878.72	\$66,018.87	39%
Up to 16000	\$215,411.49	\$8,616.46	\$224,027.95	\$241,984.17	\$9,679.37	\$251,663.54	\$27,635.59	\$270,791.10	\$10,831.64	\$281,622.74	\$29,959.20	\$298,644.75	\$11,945.79	\$310,590.54	\$86,562.59	39%
Up to 17000	\$254,603.51	\$10,184.14	\$264,787.65	\$286,010.83	\$11,440.43	\$297,451.26	\$32,663.61	\$320,058.90	\$12,802.36	\$332,861.26	\$35,410.00	\$352,980.25	\$14,118.21	\$367,098.46	\$102,310.81	39%
Up to 18000	\$303,629.69	\$12,145.19	\$315,774.88	\$341,084.77	\$13,633.39	\$354,718.16	\$38,943.28	\$381,689.10	\$15,267.56	\$396,956.66	\$42,238.50	\$420,949.75	\$16,837.99	\$437,787.74	\$122,012.86	39%
Up to 19000	\$364,080.85	\$14,563.23	\$378,644.08	\$408,993.05	\$16,359.72	\$425,352.77	\$46,708.69	\$457,681.50	\$18,307.26	\$475,988.76	\$50,635.99	\$504,758.75	\$20,190.35	\$524,949.10	\$146,305.02	39%
Up to 20000	\$440,440.21	\$17,617.61	\$458,057.82	\$494,771.93	\$19,790.88	\$514,562.81	\$56,504.99	\$553,671.90	\$22,146.88	\$575,818.78	\$61,255.97	\$610,622.75	\$24,424.91	\$635,047.66	\$176,989.84	39%
Up to 21000	\$564,596.48	\$22,583.86	\$587,180.34	\$634,243.84	\$25,369.75	\$659,613.59	\$72,433.25	\$709,747.20	\$28,389.89	\$738,137.09	\$78,523.50	\$782,752.00	\$31,310.08	\$814,062.08	\$226,881.74	39%
Up to 22000	\$687,306.55	\$27,492.26	\$714,798.81	\$772,091.15	\$30,833.65	\$802,924.80	\$88,125.99	\$864,004.50	\$34,560.18	\$898,564.68	\$95,639.88	\$952,876.25	\$38,115.05	\$990,991.30	\$276,192.49	39%
Up to 23000	\$838,000.59	\$33,520.02	\$871,520.61	\$941,374.47	\$37,654.98	\$979,029.45	\$107,508.84	\$1,053,440.10	\$42,137.60	\$1,095,577.70	\$116,548.25	\$1,161,797.25	\$46,471.89	\$1,208,269.14	\$336,748.53	39%
Up to 24000	\$1,020,294.10	\$40,811.76	\$1,061,105.86	\$1,146,155.30	\$45,846.21	\$1,192,001.51	\$130,895.65	\$1,282,599.00	\$51,303.96	\$1,333,902.96	\$141,901.45	\$1,414,527.50	\$56,581.10	\$1,471,108.60	\$410,002.74	39%
>24000	\$1,248,142.91	\$49,925.72	\$1,298,068.63	\$1,402,111.03	\$56,084.44	\$1,458,195.47	\$160,126.84	\$1,569,024.90	\$62,761.00	\$1,631,785.90	\$173,590.43	\$1,730,415.25	\$69,216.61	\$1,799,631.86	\$501,563.23	39%

0062-1

Thank you for your comment and participation in the public review of the Project and the environmental document. This comment is noted and will be considered by County decisionmakers. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response.

0062-2

The comment restates the history of the Project. This comment does not state a specific concern related to the adequacy of the SREIR and therefore does not require a detailed response.

0062-3

The comment states that the calculation of emissions used to determine the mitigation fees due under MM 4.3-8 and the Oil and Gas Emission Reduction Agreement (OG-ERA) were inaccurate. The comment also states that the mitigation fees were negotiated, that they do not represent the actual amount of air emissions generated by drilling and production operations, and that they were increased by almost 40 percent over the three-year period they were in effect with no explanation or basis to justify this escalation.

Please see Global Response (GR) 1 – Beyond the Scope of the SREIR.

The comment recognizes that this was not an issue identified by the Court of Appeal as necessary to modify in the SREIR. The County and the San Joaquin Valley Air Pollution Control District (SJVAPCD) entered into the OG-ERA on August 18, 2016, in order to implement MM 4.3-8. The OG-ERA establishes a mitigation fee program whereby oil and gas permit applicants that choose not to undertake direct emission reductions may instead pay an air emission mitigation fee. See SREIR (October 2020), Vol. 1, at 4.3-139. The proceeds of the fee are transferred by the County to the SJVAPCD to fund emission reduction projects approved by the SJVAPCD. See SREIR (October 2020), Vol. 1, at 4.3-139. The OG-ERA states that the SJVAPCD will use mitigation fees collected by the County under the Ordinance to fund emission reduction projects to reduce these criteria pollutants to net zero. Tables 4.3-31 and 4.3-32 in both the 2015 FEIR and the SREIR include total estimated per well emissions from all criteria pollutants, including both PM_{2.5} and PM₁₀, as separately calculated values and includes factors for cumulative impacts from emissions of existing wells permitted by the California Geologic Energy Management Division prior to the 2015 local ordinance, as well as operational impacts from truck and employee trips. See SREIR (October 2020), Vol. 1, at 4.3-129–133. These emissions were used to calculate the OG-ERA fees that applicants would pay in compliance with MM 4.3-8 (establishing the OG-ERA). See SREIR (October 2020), Vol. 1, at 4.3-134. The emissions shown in Table 4.3-32 were separated by Subarea and calculated by well depth per 1,000 feet to arrive at an emissions value per well depth per Subarea. See SREIR (October 2020), Vol. 1, at 4.3-133. This emissions value is then multiplied by the prior year's average cost effectiveness for emission reduction projects in the San Joaquin Valley Air Basin (SJVAB), as published in the SJVAPCD's Annual Report on the District's Indirect Source Review Program, to obtain the fee payable by applicants under the OG-ERA. Exhibit C to the OG-ERA (Appendix C to the SREIR) provides the per-well emissions and related fees as of the date of adoption of the OG-ERA.

The SREIR further explains that the cost per ton to implement emission reduction projects in the SJVAB was \$7,231 as of 2015, and thus the mitigation fees ranged from \$66,000 to \$6,900 per well in 2016, including a 4 percent administrative fee to the SJVAPCD. See SREIR (October 2020), Vol. 1, at 4.3-134–135. The cost per ton for emission reductions rose to \$7,945 per ton in 2016, \$8,123 per ton in 2017, \$9,090 per ton in 2018, \$10,025 per ton in 2019, and \$10,927 per ton in 2020. Tying the cost of mitigation fees to the actual historic cost of achieved emission reductions is necessary to ensure that Project emissions are fully offset under the OG-ERA. As emission reduction projects become harder to find, the cost per ton to implement such projects may rise. Neither the calculation of Project emissions, nor the creation of the fee schedule were negotiated decisions. The emissions calculations were based on the analysis in the 2015 FEIR and the SREIR (which, as noted by the comment, were not challenged), and the resulting fees were obtained by segmenting the emissions by well depth and Subarea, then multiplying them by the SJVAPCD's reported per ton emission reduction value. The potential for an increase in mitigation fees was fully disclosed in the SREIR and in the 2015 FEIR.

0062-4

The comment states that the OG-ERA fees are arbitrary and that they should not be paid in full for wells that produce for only a short or medium length term.

Response to Comment 0062-3 explains that the OG-ERA mitigation fees are tied to the emission calculations in the SREIR. The fees must be paid in full in advance so that the SJVAPCD can find and implement emission reduction projects that will offset Project activities as emissions from those activities occur. This also makes the OG-ERA and MM 4.3-8 conservative and ensures that all emissions from the Project will be reduced to net zero. Under Impact 4.3-2, the SREIR explains that only a subset of emissions come from well activities during production. Many emissions come from construction related to wells (drilling, rework, stimulation, and abandonment), the construction of new ancillary facilities, and the operation of stationary equipment, and these emissions will occur regardless of the length of time a particular well is in use. CEQA mitigation fees are often required up front to address impacts. *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173 (requiring shopping center to pay fair-share mitigation fees to address cumulative traffic impacts). The SJVAPCD's Indirect Source Rule (ISR) requires either on-site emission reductions from land use projects or payment of an off-site fee to achieve emission reductions outside of the land use project. See generally SJVAPCD, Rule 9510, available at <https://www.valleyair.org/rules/currentrules/r9510-a.pdf>. The ISR fees are based on estimated construction and operational emissions from the applicable land use development project, but those emissions may never actually occur depending on construction timeline, equipment used, actual buildout of the project, mobile sources used by future residents, and a host of other assumptions. Nonetheless, the SJVAPCD requires payment of the off-site fee for nitrogen oxide and PM₁₀ reductions prior to starting construction or grading for the project. See https://www.valleyair.org/ISR/Documents/ISR_FAQ_4-30-20.pdf. Payments for emissions that may never occur are also required up front.

0062-5

The comment states that the OG-ERA fee schedule is arbitrary and not based on facts.

The emission calculations shown in Table 4.3-32 were used to determine the OG-ERA proposed per well emissions in Exhibit C to the OG-ERA. See SREIR (October 2020), Vol. 1, at 4.3-132. The reason that fees increase by large amounts at certain depths is that higher horsepower drill rigs are required at various well depths, and drill rigs are designed to perform only at a certain horsepower and do not increase in horsepower in small increments. A drill rig that is designed to drill to 10,000 feet may be required to drill a much shallower well because the next less powerful rig that exists would not have enough horsepower to complete the shallower well. For example, a jump from drilling a 5,000-foot well to a well only 1,000 feet deeper (6,000 feet) could require the use of a rig that is designed to be able drill to 10,000 feet and thus has significantly more horsepower than a rig used to drill to 5,000 feet. This rig will also emit significantly more than a rig used to drill a well at 5,000 feet. Because slightly more horsepower is required, but drill rigs jump up significantly and non-linearly in horsepower, there are clear points in well depth where emissions, and thus fees, increase greatly. The relationship between well depth and drilling emissions is not linear, and therefore neither is the relationship between well depth and mitigation fees.

Subarea also matters in emission calculations because the calculations include stationary source equipment that might serve multiple wells and are based on existing and forecasted well count in each Subarea. Differences in well rework and hydraulic stimulation also exist between the Subareas. It is not true that drilling emissions are "relatively insignificant" in relation to overall emissions projected for the life of the well when considering the emissions used to calculate the OG-ERA fees. The vast majority of the emissions covered by MM 4.3-8 and the OG-ERA are from construction activities because the SREIR relies on SJVAPCD permitting and offsets for permitted equipment and activities. For example, Table 4.3-28 in the SREIR shows that estimated nitrogen oxide emissions from the Project's non-permitted equipment and activities in tons per year is approximately 4,695 tons in 2035. See SREIR (October 2020), Vol. 1, at 4.3-125. Table 4.3-19 shows that total annual estimated emissions of nitrogen oxide from well construction in 2035 are approximately 4,221 tons. See SREIR (October 2020), Vol. 1, at 4.3-109. Thus, for most criteria pollutants, well construction emissions represent the majority of the emissions accounted for in MM 4.3-8 and the OG-ERA. If the criteria pollutant values shown in Table 4.3-19 and 4.3-28 are totaled, the estimated emissions of all pollutants from all activities is approximately 21,878 tons per year, while total estimated emissions from well construction is approximately 15,477 tons per year. The *ANT Proposal: Emissions Validation and Mitigation Menu*, Appendix M-4 to Chapter 12 of the 2015 FEIR, shows emission calculations that led to the OG-ERA per well emissions. See SREIR (October 2020), Vol. 5, Appendix M-4.

0062-6

Please see Response to Comment 0062-3. The OG-ERA mitigation fees are tied to the SJVAPCD's Annual ISR Report cost-effectiveness value and are thus tied to the cost of implementing emission reduction projects in the SJVAB. In order to ensure that Project emissions are fully offset under MM 4.3-8 and the OG-ERA, the fees are tied to the prior year's actual cost of implementing emission reduction projects.

0062-7

The comment states that there should be credit for mitigations implemented by oil and gas operators to reduce air emissions.

Please see Responses to Comments 0062-3 through 0062-5 for an explanation of the factual underpinnings of the OG-ERA emission calculations and mitigation fees. Under MM 4.3-8, as an alternative to paying the OG-ERA mitigation fee, an applicant may reduce emissions for one or more designated criteria pollutants through actual reductions in air emissions from other applicant sources, as submitted to the County and validated by the SJVAPCD and approved in advance by the SJVAPCD. See SREIR (October 2020), Vol. 1, at 4.3-163–164. Many of the items listed in the comment appear to be viable direct emission reduction measures that applicants could have approved by the County and SJVAPCD, based on those agencies' discretion. However, any emission reductions must be verified as additional and not required by any other permitting or regulatory scheme.

0062-8

Please see GR-1 – Beyond the Scope of the SREIR. The Court of Appeal did not order the County to revise the SREIR with regard to MM 4.3-8 and the OG-ERA other than to state that enforceable and feasible mitigation for PM_{2.5} was required. No party challenged the calculation of the air quality emissions presented in the 2015 FEIR, the calculations of the OG-ERA emission values, or the calculation of the OG-ERA fees. The mitigation fees are tied to the air quality emission calculations in the SREIR and the annual cost-effectiveness of the emission reduction projects implemented by the SJVAPCD and thus represent the true cost of air emissions from the Project. See Responses to Comments 0062-3 through 0062-5. It would not be feasible for the County to undertake a yearly fee procedure for the number of wells that are permitted under the Project. The County's resources for monitoring and charging for air quality activities do not match the SJVAPCD's resources, and thus a comparison of the two is unwarranted. The comment does not provide evidence that the calculations in the SREIR and OG-ERA are in error. MM 4.3-8 provides that an applicant may reduce emissions for one or more designated criteria pollutants through actual reductions in air emissions from other applicant sources as an alternative to paying the fee, as submitted to the County and validated by the SJVAPCD and approved in advance by the SJVAPCD. See SREIR (October 2020), Vol. 1, at 4.3-163–164.

0062-9

The comment shows spreadsheets demonstrating the rate of increase of the OG-ERA mitigation fees.

Please see Responses to Comments 0062-3 through 0062-5.

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