## Letter BN: Abby Taylor-Silva et al, Grower-Shipper Association of Central California et al (June 22, 2020) — *continued*

**Exhibit 4**

**Narrative Comments and Reasoning for Proposed Redline Revisions to Draft General Order**

BN-249

In this Exhibit 4, we provide a narrative explanation of some of the revisions contained in the redlined version of the Draft Order that are provided in Exhibit 3 to this submittal. Within the Draft Order redlined version, comments are used to explain revisions that may not be addressed in this Exhibit. Notably, we do not provide a redline version of Attachment A or Attachment C. We have considerable concerns with both attachments and have addressed legal and policy issues contained within those attachments in Exhibit 1. Adoption of the alternatives contained in the Draft Order, as explained here in Exhibit 4, will likely necessitate some revision to Attachment A, and also potentially to Attachment C. We are willing to provide suggestions to Central Coast Water Board staff regarding such revisions upon request.

BN-250

In addition to redlines to the Draft Order, we also provide redlines to the Draft MRP. In the Draft MRP we provide comments that explain the revision. In most cases, the revisions reflect changes that have been made in the Ag Partners' redline revisions to the Draft Order. Other revisions are made to ensure consistency with the ESJ Order (e.g., domestic well monitoring revision), and/or reflect changes necessary to respond to legal and policy concerns raised in Exhibit 1. Since the redlines to the Draft MRP are fairly self-explanatory, no further explanation is provided here.

BN-251

For both the Draft Order and the Draft MRP, the Ag Partners' revisions are designed to reflect the hybrid regulatory approach that the Central Coast Water Board maintains with respect to the role of third parties. The Ag Partners, as part of this submittal, do *not* propose that there be an intermediary third party that receives all reports from those that are subject to the order that are then compiled into reports for submittal to the Central Coast Water Board with the use of anonymous identifiers. The Ag Partners recognize that the Central Coast Water Board does not support such an approach, and that individual reporting at some level has been a keystone of the Central Coast Water Board program since its inception.

BN-252

However, the Ag Partners do support the role of one or more third parties that can assist in efficient implementation of the order on behalf of growers/landowners; and, we propose to expand the role of a third party to help in this manner as is discussed below. The Ag Partners envision that much of the third-party roles described in the redline and this Exhibit can be fulfilled by Central Coast Water Quality Preservation, Inc. (Preservation Inc.), should Preservation, Inc. desire to take on additional responsibilities. Preservation, Inc. has responsibly and competently managed the cooperative surface water monitoring program for over fifteen (15) years, and has established relationships with the Central Coast Water Board, growers and landowners that are subject to the order, and the trade organizations that represent many growers in the Central Coast. Depending on what the Central Coast Water Board ultimately adopts, and the role of third-parties in what is adopted, the Ag Partners believe that Preservation, Inc. is well positioned to fulfill many of the anticipated third-party roles. In our redline, reference to the "Cooperative Monitoring Program" is intended to mean Preservation, Inc. specifically. When the

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BN-252, cont'd

term third-party is used, such role may be fulfilled by Preservation, Inc., should they agree, or another existing or new third-party that may be willing to step in and fulfill the described function.

**Comments and Reasoning for Proposed Redline Revisions to Draft General Order**

BN-253

As a preliminary matter, we appreciate the structure of the Draft Order as proposed. It is easy to follow. Accordingly, the redlines proposed by the Ag Partners maintain the structure of the Draft Order as issued for public review and comment. Within the redlines, there are two sections for which substantial revisions are provided: Part 2, Section C.1. Irrigation and Nutrient Management for Groundwater Protection; and, Part 2, Section C.5, where we delete in its entirety the Riparian Area Management for Water Quality Protection provisions and use this section for an alternative pathway for meeting the surface water provisions otherwise contained in Part 2, Sections C.2, C.3 and C.4. We explain these revisions here.

**I. Part 2, Section C.1. Irrigation and Nutrient Management Plan**

Overall, the Ag Partners' revisions to Part 2, Section C.1 are necessary for the Draft Order to properly reflect the State Water Board's precedential provisions in the ESJ Order. In its adoption of the ESJ Order, the State Water Board clearly indicated that certain provisions of the ESJ Order were applicable to all irrigated lands regulatory programs statewide.

BN-254

> Many of the findings and directions of this order are appropriate not only for the Eastern San Joaquin Agricultural General WDRs, but also for the subsequent generations of regional water quality control board (regional water board) irrigated lands regulatory programs statewide. In the [ESJ Order], we indicate which of our conclusions have precedential effect and will guide irrigated lands regulatory programs statewide. [footnote omitted] Our precedential direction is intended to guide all irrigated lands regulatory programs, including programs that directly regulate growers as individuals without a third-party intermediary and programs that regulate growers that are members of a third-party intermediary, except where specifically noted. We direct the regional water boards to revise their irrigated lands regulatory programs within the next five years to be consistent with our precedential direction in this order.

BN-255

(ESJ Order, page 9.) In particular, the ESJ Order's precedential provisions are directly related to nitrogen management for irrigated agricultural, and dischargers that are being regulated by such orders. As discussed in Exhibit 1, the Draft Order as proposed fails to adhere to the State Water Board's directions in many ways. We do not repeat those failings in this Exhibit, but rather describe how the Ag Partners redline revisions are consistent with the ESJ Order.

BN-256

In these revisions, the Ag Partners bring forward important components from the ESJ Order related to nutrient management. The paragraph numbers referenced in this Exhibit coincide with those in the Ag Partners' redline version of the Draft Order.

BN-257

- Paragraph 1: Consistent with the ESJ Order, it is appropriate for there to be INMP and INMP Summary Report templates for use by growers. To help in crafting appropriate templates for the Central Coast, there should be an option for a third-party to step in and provide recommended templates to the Executive Officer of the Central Coast Water Board. Such an approach is allowed under the ESJ Order, as long as the templates are approved by the Executive Officer. The INMP should also contain information necessary to calculate an Applied over Removed ratio (A/R), and Applied minus Removed (A-R). The Ag Partners do not support ranch-level groundwater discharge monitoring and thus such provisions are removed.

BN-258

- Paragraphs 2-3: Key to the Ag Partners' redlines is a fundamental shift from the Draft Order's imposition of restrictive nitrogen application and discharge limits to the use of establishing ranges of targets for identifying outliers. The Ag Partners' approach is consistent with the ESJ Order whereby the State Water Board embraces an approach that focuses on identifying and targeting those growers that may be outliers. Before adopting appropriate target ranges for identifying outliers (we propose A-R ranges since that is the Central Coast Water Board's focus), sound crop conversion coefficients must be developed.

  The Draft Order fails to recognize that scientifically and technically sound crop conversion coefficients are not yet available for many Central Coast crops. Rather, the Draft Order relies on literature values from a few sources. (See Attachment A, page 116.) Until such time that more precise crop conversion coefficients are available, it is premature for the Central Coast Water Board to develop appropriate target values for identification of outliers. In the interim until more precise crop conversion coefficients are available, the Ag Partners propose that the Nitrogen Application Limits in Table C.1-1 be used to identify outlies.

  As noted in paragraph 3, if a Discharger is identified by the Central Coast Water Board as an outlier, additional educational may be required. (See ESJ Order, page 53.)

BN-259

- Paragraphs 4-5: The ESJ Order provides discretion to the Central Coast Water Board with respect to INMP certification requirements. (ESJ Order, page 36.) Because the Ag Partners recommend that the Central Coast irrigated lands program be outlier based, we also recommend that INMP certification be triggered if a discharger is considered to be an outlier. The INMP certification options are taken directly from the ESJ Order. If a discharger is found to be an outlier for two or more years consecutively then the INMP certification options are more limited to ensure that the discharger is obtaining the proper advice, or additional education and training.

BN-260

- Paragraphs 6-11: As already noted, the Ag Partners propose a fundamental shift in Part 2, Section C.1 from prescriptive nitrogen application and discharge limits to an outlier approach based on the development of crop specific or crop type ranges of targets. Key to developing target ranges for determining outliers is the development of more precise crop conversion coefficients. The ESJ Order provides regional water

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boards with discretion "to determine the number of crops to be analyzed and the timeline for development of the coefficients." (ESJ Order, page 42.) Consistent with this direction, the Ag Partners propose a reasonable approach for the development of more precise crop conversion coefficients as compared to those currently referenced in the Draft MRP. Once the coefficients are adopted, it is then appropriate for crop specific or crop type ranges of target values be adopted to replace the nitrogen application values in Table C.1-1.

For both the development of more precise crop conversion coefficients and crop specific and/or crop type ranges of target values, the Ag Partners' redline creates the opportunity for a qualified third party to play a significant role in helping to fulfill this requirement.

BN-261

- Paragraphs 12-13: These paragraphs are intended to codify the use of outliers within the order, and explain how nitrogen application values and target values would be used to identify outliers. Further, these paragraphs, combined with paragraphs 6-12 and 15-16, replace Fertilizer Application Limits and Nitrogen Discharge Targets/Limits as the quantifiable milestones and time schedules. The approach is consistent with the ESJ Order, which in turn means that the approach is also consistent with the state's Nonpoint Source Policy. (See, e.g., ESJ Order, page 23.)

BN-262

- Paragraphs 14-15: The Ag Partners Exhibit 1 refutes the Draft Order's use of Nitrogen Discharge Targets and Limits as being consistent with the ESJ Order's requirements related to Groundwater Protection Formula, Values and Targets and such arguments are not repeated here. Rather, the Ag Partners provide redline revisions to properly incorporate Groundwater Protection Formula, Values and Target provisions as directed by the ESJ Order. (ESJ Order, pages 66-67.)

  Like with other provisions, the Ag Partners also believe it appropriate that Dischargers be allowed the option of developing their own Groundwater Protection Formula, Values and Targets cooperatively through an approved third party. Consistent with the ESJ Order, a Groundwater Protection Formula developed by a third party will require Executive Officer approval, after opportunity for public review and comment. (ESJ Order pages 66-67.) To simplify the process here, the redlines combine development of Groundwater Protection Values and Targets into one step for submittal to the Central Coast Water Board.

  Importantly, paragraph 15 opens the door for a third party based groundwater management program similar to that employed in the Central Valley, and approved by the State Water Board in the ESJ Order. The need for a groundwater management program is not precedential under the ESJ Order, however, like with the surface water watershed program, it is likely to be more efficacious in addressing nitrate groundwater issues in all or parts of the Central Coast region. We recognize that this approach may need further detail and description for incorporation into the Draft Order. The Ag Partners intend to spend additional time this summer preparing

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BN-262, cont'd

additional detail and explanation so that it can be explained in greater detail at the currently scheduled September workshops.

BN-263

- Paragraph 16: In general, the Ag Partners agree with equations proposed in the Draft Order.[1] However, as included in the redline revisions, additional clarification needs to be provided with respect to the variables used in the equations. The nitrogen crop cycle is complex and difficult to capture in a simplified equation. In light of this complexity, the Ag Partners consulted various professionals and well-known experts on this topic (e.g., University of California Cooperative Extension Advisors Michael Cahn and Richard Smith). We also consulted with in-house experts from various commodity organizations and grower companies. Based on this input, redline revisions are proposed to make the equations more robust and reflective of actual cultural practices on the Central Coast.

BN-264

- Paragraphs 17-24: The redline revisions in these paragraphs are necessary for consistency with other redlines in preceding paragraphs.

BN-265

- Paragraph 25: The Ag Partners support a pathway for growers to demonstrate that they are not causing or contributing to an exceedance of the primary maximum contaminant level in groundwater. Since the Ag Partners propose to delete the Nitrogen Discharge Limits, the Ag Partners replace the demonstration needed to be associated with the actual water quality objective. We believe this is consistent with the Draft Order's intent and purposes. Further, for some crops, annual demonstrations may not be necessary.

BN-266

- Paragraphs 26-29: The Ag Partners leave these paragraphs unchanged, except to delete out the refence to "discharge volumes" in paragraph 28. The recording of "discharge volumes" is inconsistent with the ESJ Order, and is also a difficult to quantify.

BN-267

- Paragraph 30: The monitoring of irrigation well monitoring is not necessary under the Draft Order as it is redundant of other requirements, and likely results in generating data of insufficient quality for its intended use. With the onset of the groundwater trend monitoring requirement, and estimating the amount of nitrogen in irrigation water used, the monitoring required here has little additional value and thus should be deleted.

BN-268

- Paragraphs 31-32: The Ag Partners leave these paragraphs unchanged.

BN-269

- Paragraphs 33-34: The Ag Partners delete these paragraphs. First, ranch-level groundwater discharge monitoring and reporting is inconsistent with the ESJ Order. Second, considering the way in which groundwater moves, there is little value or

BN-270

[1] The Ag Partners do not agree that the equations in question should be used to determine compliance with Nitrogen Discharge Limits but rather agree that they generally capture the proper calculation as it relates to A-R.

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BN-269, cont'd

benefit in ranch-level monitoring of groundwater discharges. Further, as a practical matter, it is unknown how a discharger would accomplish this task as proposed. For monitoring associated with pesticides, again, such monitoring is inconsistent with the ESJ Order. Also, the Department of Pesticide Regulation has a fairly robust groundwater monitoring program and it is not necessary to require it here.

## II. Part 2, Section C.5 Alternative Compliance Through Participation in Cooperative Monitoring Program and Enhanced Surface Water Follow-up Program

BN-271

The Ag Partners propose to replace Part 2., Section C.5 in its entirety. As discussed in Exhibit 1, the Ag Partners fundamentally oppose the Riparian Area Management for Water Quality Protection provisions for numerous legal and policy reasons. Accordingly, no attempt was made to "revise" the riparian provisions, except to create a voluntary option that is discussed further below. Instead, we use this section of the Draft Order to bring forward an alternative compliance pathway for meeting the surface water provisions that otherwise exist in Part 2, Sections C.2, C.3 and C.4. The overall approach provided by the Ag Partners in their substitute Part 2, Section C.5 is consistent with similar approaches approved by the State Water Board in the ESJ Order, as well as for municipal stormwater.

BN-272

Most importantly, the Ag Partners' approach is designed to truly address water quality impairments at the watershed level, which by most experts and professionals is agreed to be the most appropriate approach. (See Exponent Report, June 22, 2019, Section xx; see also State Water Board Order WQ 2013-0101, page 38.) Since March of 2019 (based in large part due to Central Coast Water Board comments at March 2019 workshops), some of the Ag Partners have spent considerable time with Preservation, Inc., and other professionals to develop an enhanced surface water program. The primary objective and purpose of the enhanced program is work directly with growers/landowners to help facilitate improvements on their operations/ranches that are specifically designed to address impairments that are found at cooperative monitoring program sites. Preservation, Inc. has prepared and submitted a concept proposal for this approach. (See Appendix B attached to the comments of Preservation Inc., dated June 22, 2020, *Concept Proposal for: Enhanced Surface Water Follow-up Program for Central Coast Irrigated Agriculture*.)

BN-273

To incentivize grower participation in this site-specific, educational intensive program, growers that elect this pathway will not be subject to the same requirements that they would otherwise need to meet in Sections C.2, C.3, and C.4. Rather, they would be required to work directly with the cooperative monitoring program and would need to meet minimum requirements as expressed in paragraph 8. Further, under this option, dischargers must participate in both the cooperative monitoring program for surface water as well as the Enhanced Surface Water Follow-up Program. The two go hand in hand and a grower can not select one or the other.

Paragraph specific reasoning is provided here. The paragraph numbers used in this Exhibit match those in the Ag Partners' redlined version of the Draft Order submitted as Exhibit 3.

BN-274

- Paragraphs 1-8: These paragraphs spell out the purpose of the ESWFP as well as the base requirements for growers selecting the cooperative monitoring program and Enhanced Surface Water Follow-up Program (ESWFP). Notably, dischargers selecting this alternative must do all of the following and more: participate in the cooperative monitoring program for surface water; participate in watershed education and outreach events; agree to work directly with the cooperative monitoring program and their professionals, and allow site visits to help them evaluate their operation; adopt management practices as necessary; and submit Annual Compliance Forms (ACFs) directly to the Central Coast Water Board. Participation in the CMP and ESWFP does not negate the requirement for individual reporting through the ACF.

BN-275

- Paragraphs 9: Attached to the Ag Partners redlined Draft Order is a new proposed table titled Table C.5-1. This table categorizes watersheds for the ESWFP, to direct their efforts to higher prioritized watersheds based on various criteria. For this program to be successful, the CMP will need to focus on 3 to 5 watersheds per year to conduct the intensive grower-specific outreach. Accordingly, the Ag Partners put forward Table C.5-1 to show the three different categories of watersheds, and the timing of focus for each category.

BN-276

- Paragraphs 10-12: The Ag Partners maintain receiving water limits for dischargers participating in the ESWFP, with some adjustments. First, in paragraph 10, receiving water limits associated with TMDLs that have compliance dates that have already passed, would apply on December 31, 2031. Since these TMDLs are being incorporated into the order as receiving limits for the first time, it is appropriate to provide time for dischargers to comply. Moreover, it is necessary so that the ESWFP can work with growers prior to these receiving water limits becoming applicable. The Central Coast Water Board has discretion to adopt such compliance schedules pursuant to Water Code section 13263. (See also ESJ Order, page 13, ["A time schedule for compliance with water quality requirements is explicitly permitted by Water Code section 13263, which states that WDRs 'may contain a time schedule subject to revision in the discretion of the [regional water]board.'"].)

  In paragraph 11, compliance schedules would be set for TMDL-based receiving water limits with schedules that have not yet passed for either December 31, 2031, or the TMDL schedule, whichever is later. The reasons for these adjustments are the same for those expressed in the immediately preceding paragraph.

  In paragraph 12, the Ag Partners retain the December 31, 2031 compliance schedules as set forth in the identified tables.

BN-277

- Paragraph 13: This provision provides the Executive Officer with some flexibility to adjust the categorization of watersheds depicted in the Ag Partners Table C.5-1 upon request of the CMP and upon a showing of good cause.

BN-278

- Paragraph 14: This provision is crucial to the success of the ESWFP. We anticipate that for some constituents in some watersheds, the ten year compliance schedules will

BN-278, cont'd

not be adequate. Thus, there must be some flexibility for the compliance schedules to be extended upon a demonstration as to why the compliance date that is otherwise applicable is technically and economically infeasible. The approach here is consistent with the time schedule provisions in the ESJ Order.

BN-279

- Paragraphs 15-16: These provisions set forth how long growers/landowners subject to the order have to elect the CMP and the ESWFP to address surface water issues.

BN-280

- Paragraphs 17-18: Paragraph 17 sets forth the initial evaluation that the CMP will conduct for the watersheds that is addressing with its ESWFP, and the time frame for when the initial evaluation must be completed. Paragraph 18 sets the time frames for initial evaluations for subsequent categories of watersheds as identified on the Ag Partners Table C.5-1.

BN-281

- Paragraphs 19-21: These paragraphs collectively explain the ESWFP, and the role that the CMP will play in implementing the ESWFP. These paragraphs convey the core elements of the ESWFP in that it consists of intensive one-on-one grower visits and operational evaluations, and is designed to provide growers with the information they need to address pollutants of concern for the watershed in which they reside. The program is also designed to teach growers how to self-identify issues of concern, adjust management practices to identify issues, and suggest tools that may be helpful. In addition, the CMP professionals meeting directly with growers can also help to identify other professional resources that may be helpful for the operation in question.

  The ESWFP proposed by the Ag Partners, and implementation of the program through the CMP, is consistent with, and encouraged by, the State Water Board's ESJ Order. (ESJ Order, page 20, ["Because third parties build on relationships already in place with growers, third parties can engender a high level of trust and more effectively reach out to growers to increase understanding of the permit provisions and to facilitate management practice development and deployment, especially in cases where improved management practices are required of particular growers."].) It was also encouraged by the State Water Board directly in relationship with the Central Coast's irrigated agricultural program. (State Water Board Order WQ 2013-0101, pages 13-14, ["From a resource perspective, third parties allow a regional water board to leverage limited regulatory staff by acting as intermediaries between the regional water board staff and the growers, freeing regional water board staff resources to focus on problem areas or actors."].)

  The ESWFP utilizes the CMP's long-term expertise and knowledge of the watershed as well as its established relationship with growers to address critical water quality concerns. We believe that this approach will be far more successful in addressing water quality as compared to the ranch-level, prescriptive approach that is otherwise offered in the Draft Order. Our belief is consistent with that held by the State Water Board. (See, e.g., ESJ Order page 18.)

BN-282

- Paragraphs 22-23: Paragraph 22 maintains the requirement that dischargers selecting this pathway must participate in the CMP's surface water monitoring program. Failure to meet any of the requirements in Part 2, Section C.5 will result in the grower/landowner being immediately subject to the other surface water provisions C.2, C.3 and C.4.

### III. Part 2, Section C.5 Additional Alternative 1: Surface Water Limit Compliance Through Riparian Area Management and a Cooperative Watershed Restoration Plan

BN-283

As indicated previously, the Ag Partners oppose in their entirety the riparian and operational setback provisions in the Draft Order for the legal and policy reasons included in Exhibit 1. However, the Ag Partners have worked closely with conservation partners to develop a voluntary option for riparian area management where it makes sense holistically for the watershed, and for water quality. To provide additional incentive to encourage grower participation in such efforts, the Ag Partners propose that growers participating and implementing an approved Cooperative Watershed Restoration Plan would be in compliance with all surface water receiving limits.

BN-284

Paragraphs 24-34 set forth the requirements for this approach, including termination provisions in the event that implementation of a Cooperative Watershed Restoration Plan does not occur as approved. Many of the provisions provided in these paragraphs come from the Draft Order's Cooperative Approach on pages 43-44 of the Draft Order.

BN-285

In all, the Ag Partners anticipate working closely with conservation organizations and other qualified professionals to identify areas of a watershed where such Cooperative Watershed Restoration work would have multiple environmental benefits, including benefits for water quality. Growers and landowners adjacent to or near these key areas would be encouraged to work with the conservation organizations to develop a Cooperative Watershed Restoration Plan. In reality, much of this is already occurring in important areas of the Central Coast. The Ag Partners support the continuation of such voluntary efforts and believe that this alternative may further incentivize grower participation in riparian habitat restoration efforts.

### IV. Part 2, Sections C.2, C.3 and C.4

BN-286

In addition to the substantial revisions to Part 2, Sections C.1 and C.5, the Ag Partners also provide redline revisions to Part 2, Sections C.2, C.3 and C.4. Explanation of these provisions is provided in comments in the Ag Partners redline version of the Draft Order. Additionally, legal and policy concerns for many of the provisions in these sections are provided in Exhibit 1. The lack of redline revisions to these sections should not be construed as acceptance or support for the sections as proposed. Rather, the Ag Partners focused their efforts on putting forward a reasonable approach to addressing surface water through the alternative compliance pathway set forth in the Ag Partners Part 2, Section C.5. As explained above, the Ag Partners see the alternative approach in our Section C.5 to be superior to the individual discharge approach in the Draft Order. In the event that the Central Coast Water Board rejects the alternative approach in our Section C.5, we reserve the right to recommend additional revisions to Sections C.2, C.3 and C.4 to make them reasonable and consistent with the ESJ Order.

## V. Tables and Figures

BN-287

Based on the comments provided here in Exhibit 4 as well as the redline revisions to the Draft Order, the tables and figures starting on page 54 of the Draft Order need revision. Unfortunately, the conversion of the pdf to word resulted in formatting difficulties with the tables and figures, which has prevented us from providing direct redlines. We provide a short summary of the revisions needed here.

- Table B-2 – We make no suggested edits to this table. However, we do propose a new table, Table C.5-1 for the Alternative Compliance Pathway that has been added to the Draft Order as a new Section C-5.
- Table B-3 – This table needs to be deleted in its entirety.
- Figure B-3 – This figure needs to be deleted in its entirety.
- Figure B-4 – This figure needs to be revised to delete reference to riparian priority areas.
- Table C.1-1 – This table should be re-titled as follows: Interim Fertilizer Nitrogen Outlier Values. The column titled Target or Limit needs to be re-titled to Interim Values. Further, the footnote should be revised to reflect that for crops that are harvested more than once within a year, additional units of nitrogen may be necessary prior to the second harvest of the same crop (e.g., spinach).
- Table C.1-2 – This table needs to be deleted in its entirety.
- Tables C.5-1, C.5-2, and C.5-3 – These tables need to be deleted in their entirety. We provide a new Table C.5-1 for the Enhanced Surface Water Follow-up Program.

**Exhibit 5**

ERA Economics
Environment • Resources • Agriculture

ERA Economics
1111 Kennedy Place, Suite #4
Davis, CA 95616

# Technical Memorandum

**Subject:** Economic Review of Central Coast Water Board Ag Order 4.0 and Draft Environmental Impact Report

**By:** ERA Economics LLC

**To:** Kahn, Soares & Conway LLP

**Date:** May 11, 2020

## Purpose and Background

ERA Economics (ERA) was engaged to review the economic analysis developed for the Central Coast Agricultural Order 4.0 (Ag Order 4.0, or just "Order") and Draft Environmental Impact Report (DEIR). ERA reviewed the analysis completed by the Central Coast Regional Water Quality Control Board (CCWB) and its consultants. This memorandum summarizes the following components of ERA's technical review:

BN-288

1. Comment on the appropriateness and completeness of the economic analysis developed in the Ag Order 4.0 DEIR and associated documents supporting the Order determination
2. Compare the CCWB analysis to the analysis developed for the Central Valley Regional Water Quality Control Board's (CVWB) 2012 Long-Term Irrigated Lands Regulatory Program and other comparable economic impact analysis
3. Summary scope of work describing the timeline and approach for an appropriate economic impact analysis

The following section summarizes conclusions, deficiencies, and recommendations based on ERA's initial review of the Ag Order 4.0 documents. Short resumes and bios for each team member are included as an attachment.

## Summary of Findings

BN-289

The economic analysis developed by the CCWB and its consultants is limited and fails to capture important, quantifiable economic and associated impacts of the proposed Order. Agriculture is fundamentally an economic activity that makes use of, and affects, many aspects of the physical environment. Therefore, understanding the environmental impact of the Order requires that its economic effect on agricultural operations play an important role in the analysis. The DEIR analysis, significance determination, and associated findings for the Order did not quantify important economic impacts that can be reasonably quantified. As a result, the analysis was unable to assess potential effects of the economic impacts on the physical environment and could not incorporate these linkages into

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BN-289, cont'd

significance determinations. The Order increases monitoring and reporting requirements (e.g., Annual Compliance Forms, Total Nitrogen Applied, Riparian Area Management Plans, Irrigation Nutrient Management Plans, etc.), and would impose significant management costs for growers to comply with riparian management areas, pesticide, surface runoff, and net nitrogen targets/limits. The DEIR and Order describe the accounting cost of some example management practices, but do not evaluate how growers, the agricultural industry, and linked economy (socioeconomic impacts) would adjust in response to these substantial regulatory costs. In other words, the DEIR does not prepare any economic analysis.

BN-290

The DEIR Environmental Setting for the economic analysis section (DEIR Section 3.5) is also inadequate. It does not provide an accurate overview of crop production throughout the Central Coast region or the economic factors that affect planting decisions, land retirement, and jobs, and income opportunities for communities in the region, especially disadvantaged communities. There is no discussion of how implementation of the Order would impact standard rotations and cultural practices in the Central Coast Region, and thus would significantly affect the costs of implementing the Order. The summary of current regulatory costs is based on a review of three studies that are described incorrectly in the DEIR. The reader is left with the impression that that ability to absorb additional regulatory costs depends only on whether those additional costs are less than the net return over operating (or cash) costs for a representative crop. This accounting perspective is misleading and inconsistent with the competitive market for most Central Coast crops (as stated in the studies referenced in the DEIR). This emphasizes the importance of completing an economic impact analysis.

BN-291

The DEIR determinations of the significance of physical outcomes are not supported by the analysis in the DEIR. The DEIR suggests that costs of implementing the Order are "speculative" or that the DEIR does not need to consider them because the Order does not "mandate" any specific management action. The former is simply not true; there is a well-established literature/method for assessing the effect of regulatory costs and other policy changes on producers and related businesses. The Order states that it does not mandate any specific management action, but by setting limits, targets, and imposing reporting requirements it will create costs that would be imposed on growers. Further, the inclusion of mandatory operational and/or riparian setbacks are arguably requirements that mandate a specific management action. These implementation costs, including costs associated with mandated operational and riparian setbacks, can affect land use, land retirement, and jobs in the Central Coast. However, the existing analysis did not evaluate these factors. Notably, employment and income impacts from these requirements are likely to fall disproportionately on disadvantaged communities.

BN-292

Summary findings are as follows:

**The Draft Environmental Impact Report (DEIR) does not evaluate the economic impact and resulting effects on jobs, land use, and agricultural resources of the Order, and therefore it is not possible to assess whether impacts are likely to be significant.**

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BN-292, cont'd

- There is a clear and well-established link between increasing production costs and changes in agricultural production, crop mix, and land retirement that can be evaluated using standard economic methods. The DEIR fails to include any economic analysis of these effects.

BN-293

- The DEIR states at various points that the additional management actions that may be required to comply with the Order would not result in environmental impacts (see page 2-35, first paragraph). The DEIR did not provide analysis or any form of evidence to support this conclusion. Based on our experience and our professional opinion, we believe that economic impacts would potentially or likely lead to other significant environmental impacts. The Order includes several implementation costs and requirements that would almost certainly result in changes in the physical environment. For example, meeting the nitrogen discharge limits in the Order would require reducing applied nitrogen and/or incurring additional management costs. This would result in potential changes to yield, quality, and costs that affect the mix (or number) of crops that can be grown in the region and lead to land being idled and permanently removed from production. In another example, implementation of the operational and riparian setbacks will automatically result in land-retirement because commercial crop production is prohibited in such areas. There is a well-established economic literature, including a report commissioned by the CVWB, that documents analysis that can assess this impact.

BN-294

- Appendix A to Ag Order 4.0 qualitatively describes high-level cost estimates for compliance with various reporting requirements. It is clear that the Order will impose direct implementation costs on Central Coast growers and linked industries. DEIR "Table 3.5-9. Selected Example Management Practice (MP) Implementation Cost" summarizes the range of management costs that a grower may incur, showing that implementation costs could exceed several thousand dollars per acre. Importantly, costs of nitrogen discharge requirements, compliance with surface water discharge limits, riparian setback areas, and other key substantive provisions are *not* estimated.

BN-295

- The DEIR appears to have developed some of the baseline data required to prepare an economic impact analysis that would inform estimates of changes in agricultural land use, other socioeconomic effects, and their associated potential impacts, but inexplicably stops short of completing that analysis. Instead, the DEIR presents some example accounting costs but does not use those costs to quantify potential economic impacts to growers, linked industries (processing, shipping, etc.), communities and the region as a whole.

**The DEIR Economics Chapter (3.5) fails to provide an adequate description of the environmental setting.**

BN-296

- The DEIR summarizes a crop production budget for romaine hearts and states that "*Production/harvest costs vary by commodity and potentially other factors, and thus it is difficult to generalize across the central coast region.*" (p. 3.5-4). Costs for one crop are not sufficient to characterize production costs or returns in the Central Coast region. The UC Cooperative Extension, the source of the romaine hearts budget, also provides production budgets for blackberries, broccoli,

BN-296, cont'd iceberg lettuce, raspberries, spinach, strawberries, apples, and avocados. Other budgets could easily be obtained from other reports and grower interviews.

BN-297
- As written, the DEIR implies that the static accounting measure of net return over operating or total costs is indicative of the economic response of the industry to changes in production costs. In practice, the industry supply curve, which acknowledges the variability in production practices, governs the aggregate industry response. An economic analysis of how the industry would respond to the requirements of the Order should: (i) account for risk in addition static operating costs, and (ii) evaluate the effect of implementation costs on aggregate industry supply.

BN-298
- The section summarizing "Costs of Regulatory Compliance for Growers" mischaracterizes the studies that it cites and implies that regulatory costs of 5-10% of cash operating costs are not significant. The report by McCullough et al. (2017) emphasizes the importance of risk and market conditions (supply and demand) as the key economic drivers of how an industry responds to additional regulatory costs. It quantified regulatory costs for San Joaquin Valley growers and included those costs in an economic model that was used to evaluate the potential impacts of new off-road vehicle emission regulations. The DEIR incorrectly implies that a simple profit and loss accounting captures the effect of regulatory costs. This is not adequate. In fact, the McCullough study used the regulatory costs discussed in the EIR to populate a calibrated economic model of Central Valley agriculture plus a linked input-output model to calculate the direct, indirect, and induced regulatory costs. This is exactly the type of approach that the CCWB should complete for its proposed Order determinations and associated DEIR. The DEIR cherry-picked the first component of the study only and omitted all of the subsequent and relevant economic analysis.

BN-299 **Economic impacts felt by agriculture and other businesses reliant on the agricultural sector in this region, are likely to have a disproportionate impact on jobs that are performed by those that reside in economically disadvantaged communities, raising important environmental justice considerations that were not evaluated in the DEIR.**

BN-300
- Impacts of changes in crop mix (i.e., impacts to labor intensive crops) and land retirement or fewer crop rotations per year will be felt by all of agriculture, and likely will be disproportionately felt by farmworkers, packing house, cooler, and processing plant employees. Workers filling positions in packing houses and picking crops often reside in economically disadvantaged communities in the region, or in other regions within driving distance to the Central Coast.

BN-301
- Quantifying the effect of the proposed regulation on jobs can be done using standard economic models (see summary comments below).

BN-302 **Ag Order 4.0 Appendix A described potential reporting compliance costs (e.g. filing forms and paperwork) but does not consider the more significant costs of meeting receiving water limits, discharge limits, targets, and setback areas.**

BN-303 • These are potentially significant economic costs that are likely to far exceed the costs of management and paperwork.

BN-304 • Appendix A applies an opportunity cost of management time of $45 per hour. This value is not supported in Attachment A or the DEIR and seems to be low.

BN-305 **The CVWB developed an economic impact analysis for the Central Valley using a standard approach that was available to the CCWB.**

BN-306 • The CVWB developed an economic impact analysis of alternatives for its 2012 Long Term Irrigated Lands Regulatory Program[1] that was included as an attachment to its EIR and relied upon to develop the waste discharge requirements order that was adopted by the CVWB.

BN-307 • The components in the CVWB ILRP are different than those proposed for the CCWB's proposed Order, so the magnitude of economic impacts would not be comparable. However, the CVWB clearly shows that there are methods available for quantifying potential economic impacts.

BN-308 • Example implementation costs were developed for management actions that may or may not apply to the Central Coast. However, these costs were not refined for producers in the Central Coast and incorporated into in a meaningful economic impact analysis.

BN-309 • The CVWB economic analysis did not evaluate the impacts on forward linked industries. However, it did evaluate the direct economic and indirect and induced effects on backward-linked industries of baseline conditions and five (5) regulatory alternatives.

BN-310 **The DEIR states, in general, that economic effects were not estimated because the market and regulatory environment is complicated and/or because management practices are speculative. In fact, there is a well-established approach to quantify the economic impact of Ag Order 4.0.**

BN-311 • Page 3.5-35 of the DEIR states the following in asserting that impact ECON-1 is less than significant: "*Even assuming that growers may need to take areas of land out of production, along with the potentially increased costs of compliance associated with additional management practice implementation and new or expanded monitoring and reporting requirements from Agricultural Order 4.0, the question of whether these increased costs could impact growers in the central coast region to such a degree as to cause them to go out of business or sell their lands is essentially speculative.*"

BN-312 • Analyzing economic impacts of increasing regulatory costs does not require knowing what management practice would be adopted by any given grower. If this was the standard, there would never be any economic impact assessment developed. The purpose of an economic impact analysis

BN-313 [1] The draft version is still available on the SWRCB website here: https://www.waterboards.ca.gov/centralvalley/board_decisions/tentative_orders/1612/18_kurnosoff/34_kurnosoff_pte_exh_14.pdf

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BN-312, cont'd

is to establish likely impacts, disclose those impacts, and inform development of the regulations based on those impacts. Moreover, besides the economic impact requirements associated with CEQA, the California Water Code mandates that the CCWB consider economics in adoption of the Order. (See Water Code sections 13263 and 13241.)

BN-314

- The potential costs of compliance are not speculative and have been (partially) defined in Appendix A to the Ag Order 4.0. The analysis needs to be expanded to evaluate the costs of setbacks, nitrogen discharge targets and limits, surface water discharge limits, and receiving water limits. With respect to the nitrogen discharge limits, the analysis should consider whether such limits would make it economically or agronomically infeasible to rotate multiple crops per year. This alone would have substantial economic impacts resulting in a drop in land values and lease rates. Combined with impacts from other provisions, there could be significant impacts to overall economic activity in the region.

BN-315

- There is a well-established economic approach for analyzing such impacts. An increase in cost affects the supply for agricultural products produced in the Central Coast. This has a resulting effect on the relative profitability of crops, land use decisions, ability to continue farming, and employment and other input purchases. In addition, the economic analysis should evaluate effects on farming risk and competitiveness of the Central Coast industries.

BN-316

- Simply stated, we disagree with the assertion that the effect of these implementation costs on Central Coast farming operations is speculative. Several economic frameworks are available to evaluate this exact question. In fact, the CVWB applied one such framework. We assembled a (partial) list of over 15 studies (see section "Central Valley Water Board and Other Example Analyses," below in this memorandum) prepared by the following state agencies:
    - California Department of Food and Agriculture
    - State Water Resources Control Board
    - Central Valley Regional Water Quality Control Board
    - California Department of Water Resources
    - U.S. Bureau of Reclamation
    - U.S. Army Corps of Engineers
    - California Air Resources Board

BN-317

**A standard economic impact analysis approach can be readily developed to address the deficiencies in the Ag Order 4.0 analysis and DEIR.**

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- In this memorandum, we outline a standard economic impact analysis. The general steps include:

BN-318, cont'd

1. Develop the incremental compliance costs for each water quality management action, including hardware/equipment, operations, monitoring and record-keeping, land use change, administration, and all opportunity costs.
2. Assess how those implementation costs would apply to different crop types, rotation systems, regions, and alternatives.
3. Use an agricultural economic model to evaluate how the implementation costs imposed by each alternative would affect agricultural production, returns, and land use (crop mix, acreage, and land retirement). Prepare a geospatial analysis to overlay changes in crop mix and land retirement on Farmland Mapping and Monitoring Program data.
4. Use results from the agricultural economic model to evaluate direct effects on agricultural income, output, and jobs. Link these results to an input-output model, such as IMPLAN, to estimate impacts on the broader regional economy, especially on jobs and income for backward-linked industries. Develop additional analysis to quantify the distribution of impacts (particularly for disadvantaged communities) and consider the impact to economically important forward-linked industries.
5. Use the results of (1) – (4) to evaluate the effects of the proposed Order and assess significance of socioeconomic, agriculture resource, land use, environmental justice, and other associated impacts.

BN-319 **The economic impacts of the Order are likely to result in broader policy implications.**

BN-320

- Regulatory costs affect competitiveness of the California agriculture industry. This can push industries out of the state or to other countries, and with it jobs and income for the state and region.

BN-321

- Impacts disproportionately fall on disadvantaged or severely disadvantaged communities (DAC/SDAC) because these communities are where people that work the fields, coolers, processing facilities, and equipment often reside.

BN-322

- Regulatory costs are cumulative. In addition to the Order, the Central Coast is managing implementation of other regulations. For example, implementation of the Sustainable Groundwater Management Act will result in changes in the availability and cost of groundwater in Central Coast subbasins. Wages are increasing due to competition in the labor market (labor scarcity) and changes in overtime and minimum wage requirements under SB 3 and AB 1066. In addition, the study by Hamilton and McCullough (2018) identifies other regulatory compliance costs that are increasing over time. These costs should be appropriately considered in any economic impact analysis of additional regulations specified under the proposed Order.

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## Review of Central Coast Ag Order 4.0 DEIR and Findings

This section provides a summary of the review of the analysis described in the DEIR. Comments are structured following the outline in the DEIR (focusing on Sections 3.1 and 3.5)

The key elements of the Order include phasing, quantifiable milestones/requirements (targets, limits, time schedules), and monitoring and reporting requirements. Requirements are spatially defined by groundwater and surface water priority areas. The Order significantly expands requirements including:

1. Expanded requirements for irrigation and nutrient management for groundwater, including targets and prescriptive nitrogen discharge limits
2. Expanded requirements for irrigation and nutrient management for surface water, including targets and prescriptive limits
3. Expanded pesticide management for surface water and groundwater, including specified surface water monitoring and threshold limits
4. Expanded riparian habitat management requirements that would require retiring productive farmland and developing setback areas
5. Expanded sediment and erosion management for surface water
6. Increased reporting requirements in surface water and groundwater reporting areas in the form of ACF, RAMPs, TNA, and INMPs.

BN-323

Each component would impose significant costs on Central Coast growers. Some regulatory components, such as proposed nitrogen discharge limits, may make current rotation systems economically or agronomically infeasible. This would result in substantial economic impacts (e.g., large reductions in land values and lease rates) that were not quantified or discussed in the DEIR. The following subsections summarize ERA's initial review of the DEIR and Order findings.

### Sections Eliminated from Further Analysis (Section 3.0.5)

The DEIR does not develop an economic analysis to evaluate how Central Coast agriculture would respond to the costs imposed by the Order, and the associated potential land use and job impacts. As noted in the comments below, regulatory costs to growers affect the market supply of crops, which results in land use change, land retirement (removal from agriculture), and impacts to labor, and the regional economy. We note that socioeconomic impacts would likely fall on lower income sectors of the economy (disadvantaged communities or severely disadvantaged communities). In this case there would be an additional environmental justice impact that should be evaluated (see methods discussed in subsequent sections) and included in the DEIR.

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### Agricultural Resources (Section 3.1)

The agricultural resources section summarizes potential land retirement or land use change impacts disclosed in the DEIR. The reader is referred to Section 3.5 (economics) for a discussion of how

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economics would cause conversion of agricultural lands. However, as noted in the review of Section 3.5 below, the DEIR does not in fact estimate these impacts.

BN-325, cont'd

The environmental setting relies primarily on Farmland Mapping and Monitoring Program (FMMP) data to describe general trends in total agricultural lands. The DEIR asserts that a trend analysis using FMMP data shows that prior Ag Orders did not cause conversion of agricultural land in the Central Coast. The DEIR states: "*Additionally, the results of the analysis shown in Figure 3.1-3 suggest that increasing the regulation of irrigated agricultural lands (e.g., from Agricultural Order 1.0 and 2.0) are not causing irrigated farmland to go out of production or be converted to non-agricultural uses.*" (p. 3.1-4). A trend analysis using FMMP data is not sufficient to establish that there is no causal effect of the prior Ag Orders on agricultural land use in the Central Coast. An appropriate method would apply, at minimum, a basic statistical/econometric regression model that isolates the effect of prior Ag Orders from other factors that drive changes in agricultural land in the Central Coast[2]. Moreover, Ag Order 4.0 is dramatically different than previous orders, and thus impacts from previous orders here are not applicable.

BN-326

The DEIR acknowledges that the Order would result in higher production costs for Central Coast growers, but asserts that these costs, the response by Central Coast agriculture, and associated impacts to agricultural resources are speculative and/or the CCWB does not need to consider these impacts because it does not require a specific management method. Putting aside that arguably there are some provisions that do equate to a specific management method (i.e., setbacks), we respond here to the DEIR's claim that implementation costs are speculative. Page 3.1-26 of the DEIR states: "*CCWB and its consultants analyzed potential increased costs associated with the proposed Agricultural Order 4.0, as documented in Section 3.5, Economics. As described in Section 3.5, Agricultural Order 4.0 would result in increased costs for growers due to additional requirements relative to Agricultural Order 3.0. The additional costs of management practice implementation are speculative because it is unknown which management practices will be implemented by which growers, as Agricultural Order 4.0 would not prescribe specific methods of compliance."* As discussed under comments on Section 3.5, below, the Order would increase costs, this would affect agriculture, land use, and socioeconomics in the Central Coast. There are well-established methods available to quantify these impacts. The CVWB has applied such methods in its earlier regulatory processes.

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The conclusion that Impact AG-5 (conversion of farmland to other uses) is less than significant is not supported by the analysis in the DEIR. Conversion of farmland to non-agricultural uses (e.g., land

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[2] See, for example, methodological/conceptual discussion in:
Michael J. Roberts and Ruben N. Lubowski, Enduring Impacts of Land Retirement Policies: Evidence from the Conservation Reserve Program *Land Economics,* Vol. 83, No. 4 (Nov., 2007), pp. 516-538.

JunJie Wu, Slippage Effects of the Conservation Reserve Program, *American Journal of Agricultural Economics,* Vol. 82, No. 4 (Nov., 2000), pp. 979-992.

BN-327, cont'd retirement) would result in additional socioeconomic impacts that are not disclosed in the DEIR. These impacts would be likely to fall disproportionately on disadvantaged communities in the Central Coast.

**Economics (Section 3.5)**

Section 3.5 fails to adequately describe the environmental setting in the Central Coast, quantify economic impacts of the Order, show how those impacts would result in physical changes, or discuss other socioeconomic impacts including employment and impacts to disadvantaged communities. As noted in the DEIR (p. 3.5-1): "*...economic effects of a project may be considered to the extent that they may result in adverse physical effects on the environment."* The DEIR significance criteria related to agriculture include:

BN-329

1. Increase costs for growers to such a degree that it would cause or result in growers going out of business, such that agricultural lands would be converted to nonagricultural uses; or
2. Disproportionately affect small farms or ranches due to increased implementation, monitoring, or reporting costs, such that these farms would be forced to go out of business, resulting in conversion of agricultural lands to non-agricultural uses.

The DEIR does not develop any economic analysis to evaluate these criteria. They are only addressed in an inadequate and cursory manner. An economic analysis using standard methods that have been applied by state agencies for several decades (see the section below, Central Valley Water Board and Other Analyses) would show the impacts needed to assess the significance of items 1- and -2-.

***Environmental Setting (Regional Agricultural Economic Production and Cost of Production for Growers in the Central Coast)***

BN-330 The environmental setting is partially based on old data and fails to convey the important features of Central Coast agriculture that are relevant for assessing the economic impact of the Order.

BN-331 DEIR Table 3.5-1 summarizes the Central Coast region agriculture industry. The source is a 2009 Agricultural Issues Center (AIC) report developed using 2002 baseline data. This data needs to be updated to current conditions. Cropping patterns and values have changed significantly since 2002 (or 2009 when the study was published). For example, the 2009 fruit and vegetable gross value (not including costs of production) in Monterey, Santa Barbara, and Santa Cruz was $5,037 million dollars. The 2018 gross value was $8,348 million dollars, up more than 66% between 2009 to 2018 (Monterey, Santa Barbara, and Santa Cruz Agricultural Commissioners' 2009 and 2018 crop reports). An updated table would provide a more accurate measure of the current direct and total effect agricultural production has on the Central Coast economy. This data is readily available from USDA, CDFA, and local county agricultural commissioner offices.

BN-332 The DEIR presents a production budget for a single crop, romaine hearts, to illustrate example production costs and returns in the Central Coast (Table 3.5-3). This is misleading and omits key information that would be relevant for assessing whether impacts of the Order are significant:

BN-333 1. Romaine hearts are not in any way representative of the diverse mix of crops produced across the Central Coast. Production, cost, market, and economic data are readily available for other Central Coast crops including berries, grapes, other leafy greens, and other vegetables.

BN-334 2. Summarizing a single production budget for a single crop misses the critical feature of Central Coast agriculture that is relevant for assessing the economic impacts of the Order: multiple (2-3) crops per year are produced in a carefully managed rotations system. Central Coast farmland values, lease rates, and the regional economy are a direct result of highly productive farmland. Several requirements in the Order, including nitrogen discharge limits, could make it impossible to produce multiple crops per year. This alone would cause substantial economic impacts (drop in land values and lease rates, among other impacts).

BN-335 3. The static accounting measure of net return over operating (or total) costs shown in the UC budget does not indicate how growers would respond to the Order. That is, the static measure of net return over operating costs does not indicate whether the industry (or any individual grower) would stay in business with higher regulatory costs. In practice, the industry supply curve, which encompasses the variability in production practices and costs across many growers, governs the aggregate industry response. An economic analysis that accounts for this factor and grower risk preferences (which are explicitly not included in any UC production budget) is the appropriate way to estimate how the industry would respond to additional regulatory costs.

BN-336 4. Important assumptions in the UC budget are not described (e.g., information on the ranch such as crop mix and crop rotations, fertilizer, and soil amendments, and yields).

BN-337 The DEIR fails to provide a useful or relevant overview of agricultural economics in the Central Coast. There is no discussion of markets, competition, risk, or related economic factors that actually drive farming decisions. This is the critical information required for assessing the economic effect of increased regulatory costs on physical changes in the Central Coast.

***Environmental Setting (Cost of Regulatory Compliance for Growers)***

BN-338 The summary of regulatory compliance costs in the DEIR relies on three studies. The studies are not accurately represented in the DEIR and other relevant studies are omitted. Importantly, the DEIR again fails to include any discussion of economics (i.e., how agriculture would respond to additional regulatory costs and associated physical changes), focusing instead on misleading accounting measures of regulatory costs or static estimates of net income.

BN-339 It is important to note all of the regulatory cost studies references in the DEIR are date specific. The Hurley et al. study was published in 2006 but the actual data used in the study was obtained through a 2005 mail survey. The Paggi study was published in 2009 but the data acquisition for the study was done in 2008. The regulatory cost information was obtained from a panel of orange growers in the San Joaquin Valley. The risk analysis was done in early 2009. These studies provide an accounting summary snapshot of example regulatory costs for a sample of farms at that time. In addition, these studies are accounting measures of standard production costs and regulatory costs. Neither study

BN-339, cont'd estimates the economic effect (how the industry would be likely to respond) of increasing regulatory costs on the Central Coast industries.

BN-340 A more recent regulatory cost study that was not mentioned in the DEIR was by Hamilton and McCullough, "A Decade of Change: A Case Study of Regulatory Compliance Costs in the Produce Industry" (2018). A lettuce producer in the Salinas Valley had been interviewed in 2006 and again in 2017 concerning regulatory costs. Table 1 of that study illustrates changing regulatory costs. Total regulatory costs in 2006 were $109.19/acre and by 2017 they were $977.30/acre. Significant changes were: water quality regulatory costs went from $4.30/acre in 2006 to $18.57/acre in 2017; food safety regulatory costs went from $0.68/acre to $181.48/acre; and air quality costs went from a minimal cost to $5.26/acre. Selecting accounting studies that were based on 10 – 15-year-old surveys omits important increases in regulatory costs that currently affect Central Coast growers. Two important observations can be made from the Hamilton and McCullough study: (i) costs can change (increase) over time, and (ii) regulatory costs are cumulative over time.

BN-341 The McCullough et al. study referenced in the DEIR was first published in 2017 based on surveys conducted in late 2015. The DEIR misrepresents the results of that study by implying that a simple profit and loss accounting captures the effect of regulatory costs. In fact, the McCullough study goes beyond a simple accounting of regulatory costs. It used the regulatory costs to populate a calibrated economic model of Central Valley agriculture that was linked to a input-output model (IMPLAN) that evaluated direct, indirect, and induced *economic impacts* (i.e., the central question in this DEIR). That is, the McCullough et al. study illustrates that changes in regulatory costs have *economic impacts that affect the physical environment* (land use change, fallowing, jobs, and regional socioeconomic outcomes).

***Environmental Setting (Compliance Costs for Ag Order 3.0)***

The section describing the costs of compliance with Ag Order 3.0 is a starting point for assessing the compliance costs of the current Order. However, these implementation costs need to be refined and tailored to Ag Order 4.0. In addition, the Ag Order 4.0 does not include an estimate of the impact of surface water related limits, nitrogen discharge limits, or riparian setback areas.

The cost of regulatory compliance with the Order includes the following general categories:

BN-342

1. Direct costs of fees, assessments, and paperwork
2. Changing management practices, inputs, rotations, and land use to comply with discharge targets/limits (additional direct costs), and potential loss of commercially marketable yield.
3. Changing land use to comply with riparian and operational setback requirements and developing a RAMP
4. Opportunity costs of management time for compliance paperwork, training, and other administration
5. Opportunity costs of land out of production (e.g., riparian setbacks)

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Appendix A to the Order describes example costs for item (1), only. The analysis needs to be extended to consider: (i) more accurate cost estimates for all direct costs, (ii) potential *economic* impacts and associated physical changes caused by those costs, and (iii) an assessment of the significance of those costs or ways reduce impacts. As written, the DEIR and Order do not include key regulatory costs and do not estimate how these costs would affect Central Coast agriculture.

***Impact Analysis***

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The DEIR is essentially a literature review of various accounting measures. No economic impact analysis is developed. As such, the DEIR does not assess how the economic or social effects of the Order would result in physical changes in the Central Coast or other socioeconomic impacts. This would include changes in crop mix, land retirement (fallowing and/or convert to non-agricultural uses), and regional socioeconomic impacts to jobs, income, and the local economy. Job impacts would be most significant in disadvantaged Central Coast communities.

BN-344

One key deficiency of the DEIR analysis is that it provides examples of some regulatory costs but fails to connect those costs to decisions by Central Coast producers through a standard economic analysis framework. By failing to complete this analysis, the DEIR omits important impacts that, based on our experience with other economic impact analyses, are likely to be significant. As written, it is not possible to assess whether impacts disclosed in the DEIR are in fact significant. Instead, the DEIR provides a summary of largely outdated or irrelevant facts and figures, suggests that the regulatory environment and farming is "complicated," and states that economic impacts are "speculative." To the contrary, data, methods, and models exist that are able to evaluate the economic impact of regulatory costs to Central Coast growers and the physical environment.

BN-345

The central question is whether regulatory costs added to the existing regulatory costs borne by growers increase regulatory costs to such a degree that it would cause or result in significant impacts such as growers going out of business. That question cannot be answered without the kind of analysis we describe above, but we believe it is likely that some agricultural lands would be converted to nonagricultural uses. Due to the potential that growers on the Central Coast would not be able to double-crop, among other challenges due to the complexities associated with compliance, the Order would disproportionately affect small farms or ranches. In turn, this would result in a significant loss of agricultural employment that will disproportionately impact disadvantaged communities. The DEIR has not addressed this important question and therefore, in our opinion, has no basis for dismissing economic impacts, and therefore any associated impacts, as less than significant.

BN-346

We disagree with the conclusion of less than significant impacts ECON-1 and ECON-2 on the following basis:

- Management practices and potential costs are known, and others that are missing from the DEIR can be established. Therefore, these costs are not speculative and can be estimated.

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- BN-347 A method exists to translate regulatory costs to economic impacts and changes in the physical environment. See the following section for a summary of where and how this has been applied by other agencies, including the CVWB.
- BN-348 The Order is likely to disproportionately affect small farms/ranches because these smaller operations tend to have less access to capital for new capital investments and a smaller footprint that makes it difficult to spread regulatory costs over more acreage/production.
- BN-349 The Order is likely to result in employment and income impacts that are likely to fall disproportionately on disadvantaged communities in the Central Coast.
- BN-350 We note that one of the most obvious omissions is that no real analysis has been done on nitrogen fertilizer applications as the nitrogen discharge targets and ultimately limits into the groundwater are reduced by approximately 90%. This type of change, even spread over a period of years, could have substantial yield, crop mix, crop rotation, and land retirement impacts.

## Central Valley Water Board and Other Analyses

BN-351 The CVWB Irrigated Lands Regulatory Program (ILRP) regulates discharges from irrigated lands throughout the Central Valley. In 2009, as the CVWB was assessing the effectiveness, costs, and impacts of alternatives for its long-term ILRP, it contracted with consultants including engineers, hydrologists, agronomists, and economists (collectively, the evaluation team) to evaluate the economic effects on agricultural production, costs, and associated impacts. The long-term ILRP, which was adopted via a series of orders in 2012 and 2013, instituted a number of additional management practices and expanded the previous surface water program to cover all commercial farms and discharges to surface and groundwater.

BN-352 The economic analysis was used to assist the CVWB in selecting among five alternatives and to identify both costs to growers and the associated impacts on land use, agricultural production and returns, farming viability, and the regional economy. The alternatives varied with respect to lead responsibility to oversee the program (CVWB or another lead entity), and grower regulatory responsibility (e.g., preparing water quality plans, recordkeeping, changes in surface water monitoring practices, groundwater monitoring).

BN-353 The analysis looked at all of the management practices and compliance options being considered. For major categories of crops in the Central Valley, the evaluation team estimated the additional compliance costs relative to the baseline condition, then used that information with an economic model of Central Valley agriculture to assess how the incremental costs associated with each alternative would impact agriculture, land use, and the regional economy. The steps in the analysis were:

1. Develop the incremental compliance costs for each water quality management action, including hardware, operations, monitoring and record-keeping, and administration.
2. Assess how those costs would apply to different crop categories, regions, and alternatives.

BN-353, cont'd

3. Use a regional agricultural economic model (this study applied a model called CVPM) to evaluate how the costs imposed by each alternative would affect agricultural production, returns, and land use (crop mix and acreage). Prepare a geospatial analysis to overlay changes in crop mix and land retirement on Farmland Mapping and Monitoring Program data.
4. Use results from the agricultural economic model to evaluate direct effects on agricultural income, output, and jobs. Link these results to an input-output model, such as IMPLAN, to estimate impacts on the broader regional economy, especially on jobs and income.
5. Use the results of (1) – (4) to assess significance of socioeconomic, agriculture resource, land use, environmental justice, and other associated impacts.

BN-354

The CCWB analysis develops a partial assessment of step 1, only. Table 3.5-9[3] of the DEIR summarizes some example costs for general management practices that may or may not apply to the Order. The Order determinations (Appendix A) provide cost estimates for compliance (reporting) but do not estimate the cost (or feasibility) of meeting the order's requirements.

BN-355

This stepwise approach has been used to evaluate the effects of other federal, state, and local projects or policies. Examples include, but are not limited to the following:[4]:

- 2018 – 2019 Central Valley Project Cost Allocation Study; US Bureau of Reclamation
- 2016 – 2018 Off-Road Vehicle Emission Regulations; California Air Resources Board
- 2016 – 2017 Water Storage Investment Program; Department of Water Resources (DWR)
- 2015 Governor's Executive Order B-29-15; State Water Resources Control Board
- 2015 CVP M&I Water Shortage Policy; Reclamation
- 2016 Bay Delta Water Quality Control Plan SED; State Water Resources Control Board
- 2014 – 2016 California Drought Impact Studies; California Department of Food and Agriculture
- 2013 – 2015 Bay-Delta Conservation Plan; DWR
- 2012 – 2015 CVP Long-Term Operations; Reclamation
- 2012 CVP Integrated Resources Plan; Reclamation
- 2010 North of the Delta Offstream Storage (Sites Reservoir) Feasibility Study; Reclamation
- 2009 Biological Opinions; DWR/Reclamation
- 2009 California Water Plan Update; DWR
- 2006 – 2007 Environmental Water Account; DWR
- 1998 – 2006 CALFED Bay-Delta Program (EIR and various studies); DWR
- 1997 – 1999 Trinity River Mainstem Fishery Restoration; DWR

BN-356

[3] We did not review and therefore have no opinion on these costs as part of this initial assessment. In general, it is hard to tell from the summary table provided in the DEIR how (if) capital costs were included, which operating costs were included, and if all appropriate opportunity costs were considered (e.g., if land is taken out of production to develop riparian habitat area this would include the loss in the value of the land in addition to the cost of developing that land into different types of habitat).

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[4] The list is not exhaustive and was prepared based on our personal recollections from projects we are familiar with, or directly involved with, over the last couple of decades.

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BN-355, cont'd

- 1992 – 1996 Central Valley Project Improvement Act; Reclamation

BN-358

Results of the economic analysis supported policy decisions by the CVWB and provided the needed basis for assessing impacts and significance in the EIR, as well as complying with Water Code section 13263 and 13241 requirements. In contrast, the CCWB has not prepared this type of standard economic assessment.

## Ag Order 4.0 Economic Impact Analysis Approach

BN-359

This section summarizes a technical approach for developing an economic impact analysis of the salient features of the Order, how those economic impacts result in physical changes to the environment, and assess socioeconomic impacts to Central Coast communities. The method applies standard economic analysis approaches that have been peer-reviewed (see example references below) and that have been widely applied to evaluate similar economic questions by other state, federal, and local agencies (see preceding section).

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The proposed Order would require a substantial change in the way that several key inputs (e.g., pesticides, fertilizers) to agricultural production are used both in terms of the quantity, timing, and tracking of use. An economic analysis of the impacts requires accounting/engineering cost, agronomic, and economic inputs integrated into a sequential analysis. Contrary to the DEIR, this type of analysis is not speculative and applies standard economic methods.

The key economic impacts would be driven by:

1. Direct costs of fees, assessments, and paperwork.
2. Changing management practices, inputs, rotations, and land use to comply with discharge targets/limits (additional direct costs). This would include the effect of nitrogen discharge limits on the ability to continue multi-cropping (2-3 crops/year) that is prevalent in the Central Coast and directly contributes to current land and lease values in the region. It would also include the effect on growers' ability to meet surface water discharge limits using currently available pesticide chemistries.
3. Changing land use to comply with riparian and operational setback requirements and developing a RAMP.
4. Opportunity cost of management time for compliance paperwork, training, and other administration.
5. Opportunity cost of land out of production (e.g., riparian setbacks).

Measures of economic impact would include:

1. Increases in production costs and lower yields and/or crop quality that would affect farming risk, income, and competitiveness of Central Coast producers.
2. Changes in cropping patterns and intensity that would impact land values and lease rates,

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BN-360, cont'd

3. Land retirement.
4. The effect of (1) – (3) on crop and input markets (e.g., prices) and any effect of price changes on consumers (i.e., measure of consumer surplus losses).
5. Regional economic impacts including employment and wages, with associated impacts to disadvantaged communities, processing, shipping, and retail industries.

BN-361

The purpose of the economic analysis is to quantify all regulatory costs caused directly or indirectly by the Order, determine what effect these additional regulatory costs would have on Central Coast agriculture, and quantify related socioeconomic impacts and physical changes. As discussed in the preceding section, the technical approach follows five steps:

1. Develop the incremental compliance costs for each water quality management action, including hardware/equipment, operations, monitoring and record-keeping, and administration. This would include an assessment of the potential effects of the surface water discharge limits, nitrogen discharge limits and riparian/operational setback areas to assess effects on farm operations and capital costs.
    a. The CCWB has developed initial estimates of some of the compliance costs. These costs would be reviewed with growers and compared with other studies. In particular, the assumption of $45/hr compliance cost seems low and unjustified. The opportunity cost of management time is typically greater than $45 per hour. The CVWB economic analysis, completed in 2010, applied a management cost of $120 per hour. Accounting for general inflation using the GDP-IDP, this is over $141 per hour in current dollars.
    b. The CCWB did not develop an estimate of the impact of surface water discharge limits, nitrogen discharge limits or riparian/operational setback areas. In addition, the opportunity cost of land and management time is not factored into other operation and monitoring costs. This phase of the analysis would establish these costs.
2. Assess how regulatory costs would apply to different crop categories, regions, and alternatives.
    a. Define baseline market conditions, practices, costs, and key areas (e.g., surface water, riparian, and groundwater zones) consistent with the Order's regulations and farming practices in the Central Coast. In addition, clearly define the important features of Central Coast agriculture and update the Environmental Setting sections of the DEIR accordingly.
3. Develop a regional agricultural economic model to evaluate how the costs imposed by each alternative would affect agricultural production, returns, and land use (crop mix and acreage). Prepare a geospatial analysis to overlay changes in crop mix and land retirement on Farmland Mapping and Monitoring Program data.
    a. A standard model such as the Statewide Agricultural Production Model (SWAP) would be adapted using the information developed under (1) and (2) and calibrated to Central Coast conditions. Regulatory alternatives and baseline (No Project Alternative)

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conditions would be defined to accurately estimate the incremental economic impact of the Order.

b. The economic model would be applied to assess the economic impacts of the Order, including all costs to producers, related industries, and consumers.

c. This phase of the analysis would also be used to identify ways to modify the Order to achieve the Order's objectives at a lower economic cost to businesses and individuals in the state.

4. Use results from the agricultural economic model to evaluate direct effects on agricultural income, output, and jobs. Link these results to an input-output model, such as IMPLAN, to estimate impacts on the broader regional economy, especially on jobs and income. Extend the analysis to include a geospatial overlay of disadvantaged communities to quantify additional socioeconomic impacts.

BN-361, cont'd

a. The input-output model uses the results of phases (1) – (3) to quantify the indirect and induced effects of the Order on Central Coast agriculture and linked industries. The results of this analysis would be combined with the results of (3) to quantify the total (direct, indirect, plus induced) economic impact.

5. Use the results of (1) – (4) to assess significance of socioeconomic, agriculture resource, land use, environmental justice, and other associated impacts. The DEIR would be revised, all additional impacts would be disclosed, and significance determinations would be based on the results of the economic analysis.

## Policy Implications

As written, the provisions in the Order would have substantial effects on Central Coast agriculture. In particular, and as discussed earlier, surface water discharge limits, nitrogen discharge limits and riparian/operational setbacks have the potential to impose significant economic costs on producers by making current rotation systems infeasible. These costs reduce land and lease rates, affect related agricultural businesses, ripple through the regional economy impacting other businesses, and for some crops can ultimately end up affecting food prices for consumers (resulting in consumer surplus losses).

BN-362

Some important policy implications for the Order include:

- Regulatory costs affect the ability of California producers to compete in an increasingly global market. As a result, industries, jobs, and the resulting economic activity can be pushed out of the state or to other countries. California has experienced this with major industries shifting to Mexico, Arizona, and other Western states because it is more cost effective to produce in these areas. The increasing complexity and cost of the regulatory environment in California has been cited by several studies as an area of growing concern for California producers and a factor that

BN-363

18

BN-363, cont'd

is likely to have negative impacts on the future competitiveness of the industry.[5] The cumulative effect of regulatory costs can result in entire industries leaving the state.

BN-364

- Economic impacts of additional regulations typically fall on disadvantaged or severely disadvantaged communities (SDAC/DAC). Agriculture is a significant share of jobs and income for many Central Coast communities. These communities provide the people that work the fields, factories, and equipment in the Central Coast. Regulations can have the indirect effect of reducing jobs and wages in these communities.

BN-365

- Regulatory costs are cumulative. Any economic assessment should acknowledge the current regulatory environment and how that is changing so that the incremental cost of additional regulations can be assessed in addition to the cumulative effect on the industry. For example, groundwater subbasins in the Central Coast are currently developing Groundwater Sustainability Plans (GSPs) to meet the requirements of the Sustainable Groundwater Management Act. Projects and policies specified in GSPs are expected to increase farming costs across most subbasins through a combination of fees and assessments on land and water. This affects farm income, risk, competitiveness, and the jobs and long run viability of agricultural industries.

BN-366

Based on our review of the Order and experience developing economic impact analyses for similar types of regulations, we believe the implementation costs of the Order are likely to cause land retirement, land use change, and direct, indirect, and induced socioeconomic impacts to producers and ancillary businesses in the Central Coast. The Order and DEIR did not prepare an economic impact analysis to quantify these effects. Standard, peer-reviewed economic methods are available, and have been applied by CVWB and other state agencies, to quantify the economic impact of similar regulatory programs and policies. In addition to requirements under Water Code sections 13263 and 13241 and CEQA, an economic analysis would be used to identify alternatives that reduce implementation costs and minimize socioeconomic impacts to communities in the Central Coast.

BN-367

[5] For example:
Hurley, Sean. 2005. A Synopsis of the Regulatory Environment Affecting California Specialty Crops. Report prepared for the California Institute for the Study of Specialty Crops.
Johnston, Warren E., and Alex F. McCalla. 2004. Whither California Agriculture: Up, Down, or Out? Some Thoughts about the Future. Giannini Foundation of Agricultural Economics. Special Report.
Noel, Jay E., Mechel Paggi, and Fumiko Yamazaki. 2013. The Impact of California Regulatory Compliance Costs on California Orange Producer Profitability.
McCullough, M., J. Noel, L. Hamilton, R. Howitt, D. MacEwan. 2018. Economic Impacts of Off-Road Mobile Agricultural Equipment Emission Reduction Strategies on the Agricultural Sector in the San Joaquin Valley. Prepared for the California Air Resources Board.

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# Exhibit 5

Appendix A. Resumes

## Note to Readers:

The materials provided in Exhibit 5, Appendix A, have been omitted from this section because they do not contain specific comments on the DEIR or DAO 4.0.

These materials are available for review in Section 3.3.

**Exhibit 6**

ERA Economics
Environment • Resources • Agriculture

ERA Economics
1111 Kennedy Place, Suite #4
Davis, CA 95616

# Technical Memorandum

**Subject:** Example Economic Impacts of the Central Coast Water Board Ag Order 4.0

**By:** ERA Economics LLC

**To:** Kahn, Soares & Conway LLP

**Date:** June 19, 2020

## Purpose and Background

ERA Economics (ERA) was engaged to review the analysis developed for the Central Coast Draft Agricultural Order 4.0 (Ag Order 4.0, or just "Order") and Draft Environmental Impact Report (DEIR). ERA reviewed the analysis completed by the Central Coast Regional Water Quality Control Board (CCWB) and its consultants and summarized its conclusions in a technical memorandum dated 5/11/20 (TM 1). The key finding summarized in TM 1 was that the Order and DEIR did not include an economic analysis. We believe the Order is likely to impose substantial economic costs that would result in land fallowing, crop switching, and socioeconomic impacts in the Central Coast.

This TM describes an example analysis illustrating the likely cost and economic impacts of the Order. The following items are included in this TM:

BN-368

1. Review nitrogen discharge limits and develop example per acre compliance costs for iceberg lettuce, which are extended to a partial economic impact analysis of total lettuce production in Monterey County
2. Review riparian setback requirements and summarize example economic costs
3. Describe example impacts and how these could be extended to develop a complete economic impact analysis of the Order

The following section summarizes our initial findings and recommendations. This is followed by a summary of the technical approach, quantitative analysis of example economic impacts of nitrogen discharge limits, riparian setback impacts, and summary remarks/recommendations for next steps.

## Summary Findings

BN-369

This TM develops an example impact of the nitrogen discharge limits for lettuce in Monterey County only. Other crops and counties were not considered, nor were other reporting, compliance, and requirements of the Order considered. Therefore, these costs should be interpreted as examples for only one of many crops and one of many regions in the Central Coast. Total costs are likely to be substantially higher. We have not evaluated land fallowing and crop switching. We also note that we

BN-369, cont'd

have applied a simplified agronomic relationship between yield and applied nitrogen based on published research that would benefit from future refinements.

Summary conclusions are as follows (again, these impacts apply to lettuce in Monterey County only):

BN-370

- The loss in gross value of lettuce production in Monterey County due to the nitrogen discharge limits specified in the Order is estimated at $119.4 million per year at the 200 lb/ac limit and $683 million per year at the 50 lb/ac limit.
    - Total annual job losses for these scenarios vary between 1,985 and 11,340. Most of these jobs are filled by residents of economically disadvantaged communities.
    - Labor wages fall by between $54.1 million and $309.4 million per year.
    - Value added, which is a measure of net local economic activity, falls by between $85.6 and $489.6 million per year.

BN-371

- Losses to consumers due to higher lettuce prices are estimated between $87.4 and $472.6 million per year.

BN-372

- Farming risk would increase substantially. The probability of covering operating and overhead farming costs for a typical lettuce rotation would fall from 73% currently to 45% under a 50 lb/ac/yr nitrogen discharge limit. That is, in more than half of years a producer would not be able to cover the cost of raising the crop. The probability of generating revenue greater than total costs (i.e., making an economic profit) would fall to 14% under a 50 lb/ac/yr nitrogen discharge limit. This would cause growers to leave the industry, fallow land, and switch crops.

BN-373

- A multi-crop rotation would likely become economically infeasible under the proposed nitrogen discharge limits. It would not be profitable to produce multiple crops per year and stay under the proposed nitrogen discharge limits. As shown in our analysis, this would likely cause a sharp reduction in land values, lease rates, local businesses, and jobs.

BN-374

- Many of the farm jobs affected by the Order are in job classifications and areas that would affect economically disadvantaged communities. Therefore, these losses are likely to result in additional socioeconomic and social justice impacts that are not quantified in our example summary.

BN-375

Our example analysis shows that: (i) an economic analysis of the requirements in the Order can and should be developed using standard applied economic principles, (ii) the costs of implementing the Order are substantial and would lead to land fallowing, crop switching, and severe business and job losses, and (iii) a standard economic analysis of the requirements specified in the Order would provide a foundation to identify ways to reduce implementation costs and resulting economic and environmental impacts.

2

## Approach Overview

The CCWB did not prepare an economic analysis of the nitrogen discharge limits, riparian setbacks, or other requirements specified in the Order. Standard economic methodology is available to quantify economic impacts of the Order. We apply such an approach to illustrate the range of economic impacts for an example requirement (nitrogen discharge limits) and an example crop (iceberg lettuce as a proxy to establish per acre costs that are then extended to all head and leaf lettuce acreage) in an example region (Monterey County). This partial analysis should be extended to evaluate the effect of the Order on the Central Coast economy and identify ways to reduce economic impacts.

BN-376

The following summarizes a standard economic impact analysis approach (see also TM 1) and the bullet point under each item describes how this approach was applied to assess impacts in this TM:

BN-377

1. Develop the incremental compliance costs for each water quality management action, including hardware/equipment, operations, monitoring and record-keeping, land use change, administration, and all opportunity costs.
    - **This TM** develops example costs for nitrogen discharge limits for iceberg lettuce in Monterey County.

BN-378

2. Assess how those implementation costs would apply to different crop types, rotation systems, regions, and alternatives.
    - **This TM** includes a partial accounting of costs for an example 2-crop iceberg lettuce rotation. It does not include additional management and compliance costs.

BN-379

3. Use an agricultural economic model to evaluate how the implementation costs imposed by each alternative would affect agricultural production, returns, and land use (crop mix, acreage, and land retirement). Prepare a geospatial analysis to overlay changes in crop mix and land retirement on Farmland Mapping and Monitoring Program data (or other land use data to assess significance of impacts on agricultural land).
    - **This TM** does not develop a full agricultural economic model. Therefore, we are not able to estimate fallowing and change in crop mix (we would need to extend the analysis to other crops and develop this type of model). This should be done as a next step by the CCWB. However, we do develop an example farm budget analysis that illustrates producers' ability to cover costs, generate a profit, and assess risk. This analysis clearly shows that net income would fall to a level that would make it difficult to cover farming costs in most years.

BN-380

4. Use results from the agricultural economic model to evaluate direct effects on agricultural income, output, and jobs. Link these results to an input-output model, such as IMPLAN, to estimate impacts on the broader regional economy, especially on jobs and income for backward-linked industries. Develop additional analysis to quantify the distribution of impacts (particularly for disadvantaged communities) and consider the impact to economically important forward-linked industries.

3

BN-380, cont'd

- **This TM** develops an example IMPLAN analysis for the example impacts developed for nitrogen discharge limits in Monterey County lettuce. This approach should be refined and extended to include other crops, costs, and regional considerations.

BN-381

5. Use the results of (1) – (4) to evaluate the effects of the proposed Order and assess significance of socioeconomics, agriculture, land use, environmental justice, and other associated resources.

    - **This TM** indicates where this is likely to occur but does not quantify these costs.

BN-382 The following section summarizes an example economic analysis of nitrogen discharge limits. This is followed by a summary of riparian setback requirements. A final section summarizes impacts, limitations, other costs, and recommended next steps.

## Nitrogen Discharge Limits Example Economic Impact

Based the magnitude of impacts shown in this initial analysis, our experience developing similar studies, and our professional opinion, the impact of the Order is likely to include substantial land fallowing and crop switching. There was insufficient time to develop a full economic impact analysis of nitrogen discharge limits proposed in the Order, as described above.

We reviewed existing, peer-reviewed literature and assembled data to develop a partial economic impact analysis for an example crop (iceberg lettuce[1]) and production region (Monterey County). The next step would be to extend this to all crops, develop a calibrated economic model of Central Coast agriculture, and assess specific impacts on land fallowing and crop switching. This should include evaluating regulatory alternatives to identify options that reduce overall costs and achieve a desired level of benefit. This is the standard economic impact analysis approach.

BN-383

The economic analysis is developed using an example of iceberg lettuce. We simplify the analysis by focusing on the effect of nitrogen application rates on crop yield. Crop quality could also be affected and result in additional costs, but that is not factored into our example analysis. Further, we consider both a single iceberg lettuce crop and a two-crop annual rotation (iceberg lettuce followed by iceberg lettuce). In practice, rotations are intensive and vary across the Central Coast. Other production practices and costs also vary (e.g., planting/harvesting date, yield, packaging, bed spacing, pest management, etc.). The example analysis uses representative production costs and returns.

The first step is to relate changes in nitrogen application to changes in crop yield. We use the peer-reviewed article by Hoque et al. (2010)[2] to illustrate the effect of nitrogen application on iceberg lettuce yields. Their study used field-controlled trials to evaluate the effect of varying N, P, and K application

BN-384 [1] As noted earlier, we develop per acre costs for iceberg lettuce and then apply these costs to Monterey County lettuce acreage (head and leaf). The per acre costs for leaf lettuce are similar to head lettuce. Head lettuce is a large share of crop value in the Salinas Valley. Iceberg was valued at $459 million and leaf lettuces were valued at $733 million in the 2018 Monterey County Crop Report.

BN-385 [2] Hoque, M., H. Ajwa, M. Othman, R. Smith, M. Cahn. 2010. Yield and Postharvest Quality of Lettuce in Response to Nitrogen, Phosphorus, and Potassium Fertilizers. *HortScience*. 45(10):1539-1544.

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rates on romaine and iceberg lettuce yields. We acknowledge some of the important agronomic questions embedded in their work and focus specifically on nitrogen application rates.

Hoque et al. (2010) estimate a lettuce yield-nitrogen relationship (or yield function). It shows the expected relationship of increasing yields that increase at a diminishing rate. That is, lettuce yields increase with nitrogen application as a quadratic function[3]:

(TM 1) $Yield = -0.0006 * N^2 + 0.3188 * N + 15.522$

The nitrogen discharge limits and implementation schedule[4] are specified in the Order. Under compliance pathway 1, the nitrogen discharge is calculated as applied nitrogen per acre per year plus a portion of the nitrogen in compost plus nitrogen applied in irrigation water less what is removed in the harvested crop (or sequestration of other removal methods). The calculated nitrogen discharge in compliance pathway 1 cannot exceed the discharge limits (N in lb/ac/yr), which are reduced to 50 pounds per acre per year by 2050. Under compliance pathway 2, the nitrogen applied from fertilizer plus a portion of the nitrogen in compost must equal the nitrogen removed in the harvested crop (or sequestration or other removal methods).

BN-383, cont'd

Given that the nitrogen in irrigation water and the percent proportion of nitrogen in the harvested crop are beyond control of the grower, the primary response available to the grower is to reduce applied nitrogen to meet discharge limits[5] specified in the Order.

Nitrogen removed in the harvested crop is calculated using the conversion coefficient for iceberg lettuce defined in table MRP-1 "Nitrogen Removal Conversion Coefficients" in Appendix B to the Order. Applied irrigation water nitrogen is calculated from the publication by the University of California Cooperative Extension (UCCE) and UC Davis Plant Science[6]. The most current 2017 UCCE iceberg lettuce production budget[7] is used to define production practices, costs, and returns.

An iceberg lettuce yield function is calculated over a range of applied nitrogen per acre per crop using equation (TM 1). The yield at each application rate corresponds to a quantity of nitrogen removed by the harvested crop. Nitrogen in applied irrigation water is accounted for using the default UCCE applied water requirements for iceberg lettuce of 12 inches (January – April season), and assuming an aggregate level of 10 mg/L of nitrogen in the groundwater.

The analysis assumed an application of compost at the rate of 2 tons of compost per crop and assumes a (conservative) 1% nitrogen content of the compost[8]. As shown in Section C of Attachment A to the Order, according to CCWB data, the current median nitrogen fertilizer application rate for the reporting

BN-386 [3] Yield is measured in tons/ha and N is measured in kg/ha as shown in the formula. We convert yield to cartons/ac and N to lb/ac for reporting purposes and all subsequent calculations.

BN-387 [4] Per Table C.1-2 of the Draft Order.

BN-388 [5] We note that 2022 and 2024 levels are targets, not limits. The analysis focuses on the more salient discharge limits.

BN-389 [6] Cahn, M. L. Murphy, R. Smith, T. Hartz, On-Farm Trials Evaluating the Fertilizer Value of Nitrogen in Irrigation Water. UCCE and UC Davis Plant Science.

BN-390 [7] Tourte, L. R. Smith, J. Murdock, D. Sumner. 2017. Sample Costs to Produce and Harvest Iceberg Lettuce. Central Coast Region.

BN-391 [8] The general range is 1-3%. The lower value of 1% is applied since no compost decomposition factor is included in the calculation.

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years 2014 through 2018 ranges between 150 and 180 lbs N/ac/crop, the 90th percentile is 275 lbs N/ac/crop, and the recommended range is between 120 and 220 lbs/N/ac/crop. A baseline nitrogen fertilizer application rate of 209 lbs/N/ac/crop is applied in our analysis. An example two-crop rotation (two iceberg lettuce crops per year) is used, with total nitrogen discharge calculated as double the single crop value. In practice, standard rotation systems vary across the Central Coast regions and this should be refined in future work. The resulting applied nitrogen and nitrogen discharge amounts are used to estimate (using OLS regression) a quadratic function[9] that relates estimated nitrogen discharge (ND) to the level of applied nitrogen (AN):

$$(\text{TM 2}) ND = -0.0003 * AN^2 + 0.6856 * AN + 38.308$$

Equation (TM 2) is used to calculate the maximum nitrogen that could be applied and still meet the nitrogen discharge limits contained in the Order decreasing from 200 to 50 lbs/ac/year, with implementation limits set to start in 2030[10] as shown in Order Table C.1-2. Results are summarized in Table 1, below.

BN-383, cont'd

**Table 1. Discharge Limits and Constraints on Nitrogen Applied Needed to Achieve Discharge Limit**

| Discharge Limit (N lbs/ac/yr) | Total Nitrogen Applied (N lb/ac/yr) | Nitrogen Applied (N lb/ac/crop) |
|---|---|---|
| 200 | 327 | 163 |
| 100 | 208 | 104 |
| 50 | 144 | 72 |

Equation (TM 1) is then used to estimate lettuce yield from the applied nitrogen and the yield reduction is calculated as the yield loss relative to the baseline application of 209 lbs N/ac/crop. The gross cost is the gross revenue loss with lower yields. The net cost is the loss in gross revenue, less the harvest cost that would have been incurred. Costs are reported on a per crop and per acre basis, for a simplified example of two iceberg lettuce crops per year. In practice, more intensive rotations with other crops are standard practice and are what supports the high land values, jobs, tax revenue, and economic activity in the Central Cost.

**Direct Economic Impact**

BN-392

The iceberg nitrogen applied and removed calculations are used to estimate the expected cost per acre. This per acre cost is then applied to total head and leaf lettuce acreage in Monterey County. Annual crop reports show combined head and leaf lettuce harvested acreage has ranged between 95,000 and 110,00 acres over the last decade. Harvested acreage counts an acre that produces 2 crops per year as 2 acres. This analysis uses 100,000 acres as a representative total acreage. Table 2 summarizes the example cost of the nitrogen discharge limits for head and leaf lettuce production in Monterey County. Results show estimated yield loss, gross revenue loss per acre, and total direct impact in Monterey County at 2030,

BN-393

[9] AN is in lb/ac/crop and ND is in lb/ac/year.

BN-394

[10] Limits start in 2026, this TM evaluates the limits starting in 2030 and thereafter.

2040, and 2050 discharge limits (200, 100, 50 lb/ac/yr). A 12-month average price of $13.80 per 42-lb carton[11] is applied, average annual yield is 900 cartons/ac using the UCCE production budget.

Estimated annual direct gross revenue losses from the nitrogen discharge limits for lettuce range from $78 to $446 million per year in Monterey County alone. As of 2019, the total lettuce crop was valued at $1.19 billion (leaf lettuce crop was valued at $730 million and the head lettuce crop at $459 million). This estimated impact is an approximate reduction of 40% of the current industry value of head and leaf lettuce production in Monterey County.

**Table 2. Direct Economic Impact Summary of Nitrogen Discharge Limit, Monterey County Lettuce Example**

BN-392, cont'd

| Nitrogen Discharge Limit (N lbs/ac/yr) | Yield Loss (cartons/ac) | Gross Loss ($/ac) | Direct Impact (Million $/yr) |
|---|---|---|---|
| 200 | 56.5 | $1,470 | $78.0 |
| 100 | 206.8 | $5,375 | $285.3 |
| 50 | 323.4 | $8,405 | $446.2 |

The direct impact represents changes in gross sales value for lettuce. This industry is inextricably linked to other sectors of the economy. Since most of the agricultural products from Monterey County are fresh vegetables and fruit, much of the required cooling, processing, and distribution takes place in the immediate region. Substantial changes in the profitability and quantities of the key crops grown, such as lettuce, will cause ripple or "multiplier" effects on other businesses and employment. These effects are termed secondary economic effects as opposed to the loss of primary product above that are direct economic effects. The total economic impact is the sum of the direct and secondary impacts.

**Total Economic Impact**

Secondary impacts (also known as "multiplier" effects or "indirect and induced" effects) are estimated using the Impacts for Planning and Analysis (IMPLAN) model and data developed by MIG, Inc. The IMPLAN 2014 R3 database is applied, and all dollar impacts are indexed to current dollars using the GDP Implicit Price Deflator. IMPLAN is an input-output model that can be used to quantify the effect of changes in expenditures in one sector of the economy on related sectors. Gross revenue impacts are modeled as a change in final demand for the IMPLAN Vegetable and Melon Farming sector.

BN-395

Total impacts are summarized in Table 3. Total gross value impacts are $119.4 million per year at the 200 lb/ac/yr limit and $683 million per year at the 50 lb/ac limit. Total annual job losses are between 1,985 and 11,340. Labor wages fall by between $54.1 million and $309.4 million per year. It is important to note again that many of the farm jobs affected by the Order are in areas classified as economically disadvantaged communities. Therefore, these losses are likely to result in additional socioeconomic and social justice impacts that are not represented in this impact summary. Finally, value

BN-396

[11] Using recent historical data from USDA AMS.

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added, which is a measure of net local economic activity, falls by between $85.6 and $489.6 million per year.

**Table 3. Total Economic Impact of Nitrogen Discharge Limits on Employees, Producers, and Businesses ($ in millions)-Monterey County Lettuce Example**

| Nitrogen Discharge Limit (lb/ac/yr) | Impact | Jobs | Wages | Value Added | Output Value |
|---|---|---|---|---|---|
| 200 | Direct | -935 | -$38.4 | -$59.4 | -$78.0 |
| | Secondary | -1,050 | -$15.7 | -$26.2 | -$41.4 |
| | **Total** | **-1,985** | **-$54.1** | **-$85.6** | **-$119.4** |
| 100 | Direct | -3,415 | -$140.4 | -$217.2 | -$285.3 |
| | Secondary | -3,835 | -$57.4 | -$95.9 | -$151.4 |
| | **Total** | **-7,250** | **-$197.8** | **-$313.0** | **-$436.7** |
| 50 | Direct | -5,340 | -$219.6 | -$339.6 | -$446.2 |
| | Secondary | -6,000 | -$89.8 | -$149.9 | -$236.8 |
| | **Total** | **-11,340** | **-$309.4** | **-$489.6** | **-$683.0** |

BN-395, cont'd

This analysis should be interpreted as an example for only one crop type (iceberg lettuce) and only partially accounting for the economic cost of the proposed nitrogen discharge limits. It uses a standard calculation method based on public data and published research to estimate agronomic response. The example economic impacts illustrate two important points:

BN-397

1. An analysis that is tasked with exploring the impacts of the regulations on the physical environment must consider the impact on the land use, labor employment, and secondary processing impacts of these restrictions. This analysis can and should have been done.

BN-398

2. The cost of the proposed draft discharge restrictions is substantial and could have far-reaching effects on land use and the social structure in the Salinas Valley. These effects can be estimated using a standard economic analysis approach.

BN-399

Losses of nearly three-quarters of a billion dollars per year would have devastating impacts on the local economy. The direct losses alone represent over 40% of the current lettuce crop gross value in Monterey County. Additional impacts to other crops, rotations, and other Central Coast counties would occur. Impacts to jobs and labor income would disproportionately fall on farm workers and disadvantaged communities. We have not considered what crops might replace some of the lost lettuce acreage. This next phase in the analysis would require developing an economic model of Central Coast agriculture.

BN-400

**Consumer Impacts**

The Salinas Valley, which largely resided in Monterey County, is colloquially known as the world's salad bowl. In seasons that are staggered with Yuma and the Imperial Valley, it is the major producer of

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fresh vegetables, berries, and leafy greens. A decrease in production (supply) caused by implementation of the Order would affect retail prices and purchases by consumers. The impact to consumers is called the consumer surplus loss.

The effect of a change in supply or demand on market-clearing price depends on market structure and how price responsive producers and consumers are (price elasticity). We develop an example analysis to illustrate the potential consumer surplus loss.

We apply a standard Equilibrium Displacement Model (EDM[12]) to illustrate an example magnitude of consumer price impacts resulting from changes in Monterey County lettuce production alone. A more detailed analysis should be prepared using data for other major crops in the Central Coast region. Lettuce supply and demand elasticities[13] are set at 0.21 and -0.336, reflecting a relatively inelastic supply response and consumer (retail) demand response.

BN-400, cont'd

We calculate[14] the change in consumer surplus under the 200, 100, and 50 lb/ac/yr nitrogen discharge limits. Table 4 summarizes the results. Annual consumer losses range from $87 million to $472 million. These are interpreted as additional direct losses to consumers due to higher produce prices at the store.

**Table 4. Annual Consumer Loss from Nitrogen Discharge Limits on Lettuce in Monterey County ($ in millions)**

| Nitrogen Discharge Limit (lb/ac/yr) | Consumer Surplus Loss ($ in millions) |
|---|---|
| 200 | $87.4 |
| 100 | $309.9 |
| 50 | $472.6 |

As demonstrated in Table 4, the consumer loss from Monterey County lettuce nitrogen discharge limits alone is considerable—not to mention other crops and counties in Region 3 that can and should be analyzed.

**Farm-Level Fiscal Impacts and Risk**

BN-401

In addition to regional economic impacts to the Central Coast economy and economically disadvantaged communities in the area, the direct costs of the proposed Order can be used to illustrate effects on farming risk. This gives us a sense for the magnitude of land fallowing that the nitrogen discharge limit will likely prompt.

BN-402 [12] Wohlgenant, M. The EDM and Measures of Consumer Welfare. In: The Oxford Handbook of the Economics of Food Consumption and Policy. Eds: Lusk, J, J. Roosen, J. Shogren.

BN-403 [13] Using results in: Russo, C. R Green, R. Howitt. Estimation of Supply and Demand Elasticities of California Commodities. 2009. UC Davis Agricultural and Resource Economics. These values should be updated/refined in future economic impact analyses.

BN-404 [14] The formula is: $\Delta CS = P_0 Q_0 (\frac{\eta \varepsilon k}{\varepsilon - \eta} - k)(1 + 0.5 * \frac{\varepsilon k}{\varepsilon - \eta})$; where $k$ is the percentage change in supply (production), $\varepsilon$ is the supply elasticity, and $\eta$ is the demand elasticity. See Wohlgenant reference in footnote above. We note that the price effect would have an offsetting impact to producers that is not calculated in this example analysis.

BN-401, cont'd

Yield losses up to 323 cartons of lettuce per acre would likely make producing multiple crops per year infeasible. The two-crop iceberg lettuce rotation used in this simplified example calculates the net economic impact as the loss in revenue minus the harvest costs. Under the proposed nitrogen discharge limits, a grower's best option, would be to reduce overhead costs and farm a single crop per year that is most profitable given the fixed amount of nitrogen a grower may use under this order. However, profit would decline substantially compared to current conditions and land values and lease rates would fall in proportion to this substantial drop in productivity or convert to other urban uses.

BN-405

Yields and prices vary due to weather, pests, and market conditions that are beyond the control of any individual grower. Reduced yields and/or higher production costs will increase farming risk. An example analysis is developed to illustrate the impact of the Order on farming risk and returns.

The UCCE iceberg lettuce crop budget is used in the analysis. Estimated cash operating costs are around $9,950 per acre. Gross return is around $12,000 at a crop price of $13.80 per carton. Non-cash overhead costs are estimated at $500 per acre and cash overhead cost are around $2,000 per acre. Although the gross value of the crop is significant, so are farming costs. This means that margins are thin. An increase in cost or change in yield increases farming risk, calculated for purposes here as the probability that returns cover operating and overhead costs.

A stochastic farm budget analysis is developed to quantify the change in variability of net farm income (e.g. risk) and change in the probability of covering cash operating costs. The stochastic analysis applies historical variation in price, yield, and cost to evaluate the probability of various levels of gross returns (or profits). The 2000 - 2017 historical time series of real prices and average iceberg lettuce yields is used to fit the historical price and yield distribution. A Monte Carlo simulation is developed to illustrate the range of outcomes based on the historical distribution.

Outcomes are expressed as the probability of realizing a net return (revenue minus variable operating costs). Net return per acre is defined as gross revenue (price * yield) minus variable/operating costs (e.g., cost to plant, raise, and harvest a crop), noncash overhead costs (e.g., capital recovery costs for equipment and other investments), and cash overhead costs (e.g., office expenses, property taxes, insurance). Operating costs can be avoided if a field is not planted. Overhead costs must be paid whether or not the field is planted. We define the following threshold levels based on the ability to cover cash overhead costs and cash plus noncash overhead costs[15] (these thresholds correspond to the different color bands shown in Figure 1):

- **Lower Threshold**. A return of $500 per acre would cover noncash overhead costs only (but would not cover cash overhead costs). Below this point the grower is losing money on a per-acre basis for that crop.
- **Mid Threshold**. A mid-point return of $2,500 per acre would cover both cash and noncash overhead costs. Between $500 and $2,500 per acre the grower would be covering a portion of overhead costs but would realize no profit.

BN-406

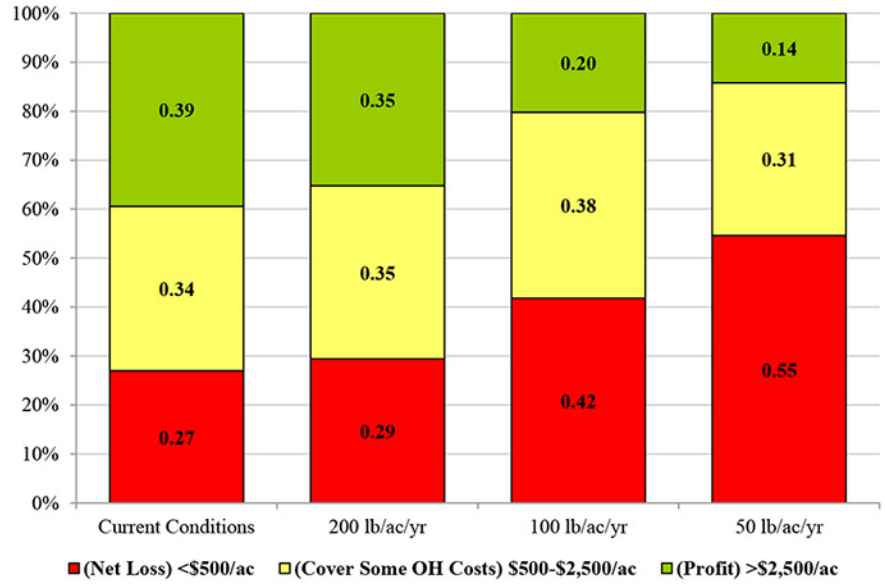
[15] All costs are defined using the UCCE iceberg lettuce budget.

BN-405, cont'd

- **Upper Threshold**. Above $2,500 the grower covers cash overhead and non-cash overhead costs. In other words, the grower is realizing a profit.

Figure 1 illustrates the results of the analysis. Under current conditions, growers can expect to cover at least some overhead costs or generate a profit (return on investment) with 73% probability (.39 +.34), shown by the green and yellow bars in the left-hand column. Under the 50 lb discharge limits shown in the far-right bar, this falls by 28 percentage points to 45% (0.14 +0.31). That is, a grower cannot cover cash overhead costs in more than half of years. The probability of covering all costs (making a profit) during a year falls to 14%. That is, in more than half of years a grower would have been better off not planting at all. This is clearly not sustainable and would lead to land fallowing or conversion to other land uses. The figure also shows the incremental changes as the discharge limits are reduced from 200 to 50 lbs/ac. The increase in farming risk is apparent even at the 200 lb nitrogen discharge limit (the second column in Figure 1). The analysis illustrates the Order would substantially increase farming risk. This would likely lead to crop switching and land fallowing and conversion to other land uses.

**Figure 1. Probability Chart of Iceberg Lettuce Returns Covering Operating and Overhead (OH) Costs**




BN-407

Other factors such as food safety scares, trends in consumer purchases, weather, pests, disease, and water supply can impact crop availability and quality in any year. For example, in 2019 an *E. coli* O157:H7 outbreak affected romaine lettuce (and other leafy greens) demand right before important fall holidays. Under current conditions, growers can stay in business because these bad years are followed by other good years. As illustrated above, the frequency of occurrence of the good years would be

BN-407, cont'd

reduced under implementation of the Order. This increase in risk strongly indicates that growers would be likely to exit the industry.

BN-408

It is important to note that this analysis was developed for one example crop. The impacts are more dramatic for other, typically lower-margin crops including broccoli and other cole crops often included as breaks in the rotation. We would expect additional impacts as this analysis is extended to other crops and areas.

## Setback Requirements

BN-409

Attachment A of the Order defines riparian setbacks for agricultural areas that are contiguous with riparian water bodies. The two major types of setback requirement, a riparian setback for Riparian Priority areas, and the more general operational setback for ranches that are outside the priority areas but are in places where setbacks are required for discharge control. From an economic damage/valuation perspective there is little difference between these two types of setbacks since both require land to be permanently fallowed.

BN-410

Table A.C.5 – 21 in the Order shows the stream miles and acreage potentially affected by setback requirements by HUC-8 name. For the purposes of this example analysis we assess the annual cost of the setback to the agricultural industry in the greater Salinas Valley which we define as the HUC-8 Salinas Valley plus the Pajaro Valley. The total irrigated acres in the greater Salinas Valley is 253,526 acres. According to Table A.C.5 – 21, the total acreage for all setbacks in this region is 2,163 acres.

The simplest method of establishing the direct costs of this level of setback is to use the going annual rental rate of irrigated crop land in these regions to establish the annual cost of removing this quantity of land agricultural crop production. Given the specialized and valuable nature of crop production in the Pajaro and Salinas Valleys, rents are substantially higher than standard agricultural crop land that is restricted to a single annual crop of lesser value. Cropland rents in the two valleys are sustained by the high value of the vegetable and berry crops grown, and the fact that almost all areas are multi-cropped.

The American Society of Farm Managers and Rural Appraisers[16] publishes trends in agricultural land and lease values, in which they valued annual rental rates for the crop land in Monterey County over a range of $820 per acre to $3,300 per acre year, or an average rental value of $2,300 per acre per year. A second source is a 2017 publication by the Resource Conservation District of Santa Cruz County[17] analyzing the potential for cover crops in the Pajaro Valley. The study records a lease value for land used for growing vegetables at $1,700 an acre per year.

Using a conservative value of $1,900 per acre per year, the annual cost of lost lease value for the 2,163 acres is $4.1 million. This represents the additional direct costs to producers. Additional costs of

BN-411

[16] Trends in Agricultural Land and Lease Values. California Chapter of the American Society of Farm Managers and Rural Appraisers. Folsom, California.

BN-412

[17] Rotational Crop Plan Economic Analysis. 2017. Resource Conservation District of Santa Cruz County.

BN-410, cont'd

developing and maintaining the setbacks are not included in this example calculation. In addition, setbacks, depending on their location, may affect other farming practices, such as additional food safety setbacks, and this would impose additional costs. Other paperwork and compliance time are also not considered in this example analysis but would result in greater costs. Similar to the nitrogen discharge limits, these direct compliance costs would create additional multiplier impacts in the Central Coast economy.

## Concluding Remarks

BN-413

It is clear, in our professional opinion and based on the analysis summarized in this TM, that the Order would likely lead to significant land fallowing, changes in crop composition, permanent land use conversions, and socioeconomic impacts. Going from multiple crops to just one crop a year would have devastating impacts on grower returns.

BN-414

We developed this as a data-driven example analysis using a standard economic methodology. We expect other factors would lead to greater costs. Since we did not develop a full economic model, we were not able to assess the potential for switching to other crops. Other factors considered in the analysis that were not quantified include:

- This example was developed for Monterey County iceberg lettuce production only. The nitrogen discharge limits in the Order apply to other crops and throughout the Central Coast region. Impacts would increase if these other crops and areas are considered.
- We did not develop a calibrated economic model of Central Coast agriculture, markets, and rotations. This analysis would allow us to capture the interaction between different crops due to rotations and their implications for changing markets, land fallowing, and crop mix.
- Other regulations that affect farming costs were not considered in the analysis but would have a cumulative effect on impacts. For example, the Sustainable Groundwater Management Act (SGMA) is expected to reduce water supply and increase water costs. AB 1066 and SB 3 could exacerbate the effects of general labor scarcity and increase wage/labor costs.
- Costs, returns, cultural practices, and other costs should be validated through grower interviews. This analysis was based on standard UCCE crop budgets. Our standard approach would be to first work with the industry to refine these data and estimates in order to prepare a more precise analysis. This would also develop compliance costs for other components of the Order (e.g., management time and developing riparian setback areas)
- We did not evaluate other compliance costs. This would further increase operating costs and increase farming risk. Other requirements specified in the Order include:
    - Expanded requirements for irrigation and nutrient management for groundwater, including the targets and prescriptive nitrogen discharge limits considered in this study
    - Expanded requirements for irrigation and nutrient management for surface water, including targets and prescriptive limits

13

BN-414, cont'd

- Expanded pesticide management for surface water and groundwater, including specified surface water monitoring and threshold limits
- Expanded riparian habitat management requirements that would require retiring productive farmland and developing setback areas
- Expanded sediment and erosion management for surface water
- Increased reporting requirements in surface water and groundwater reporting areas in the form of ACF, RAMPs, TNA, and INMPs.

BN-415

In summary, we developed an example analysis showing the per acre cost of nitrogen discharge limits on iceberg lettuce, and the effect on farming risk. We used those per acre costs to estimate the total direct, indirect, and induced impacts to lettuce in Monterey County. Our example analysis shows that the Order is likely to result in substantial land fallowing, land conversion, and other socioeconomic impacts in the Central Coast regions. The analysis considered the impacts of nitrogen discharge limits. This is one of several costs imposed by the Order, and one of several other regulatory changes (e.g., SGMA) that will affect farming costs in the Central Coast. We recommend that the CCWB extend the framework described in this TM (and our other TM) to evaluate the incremental and cumulative impact of the Order and identify strategies that reduce economic impacts on local communities.

14

**EXHIBIT 7**

*Environmental and Earth Sciences*

Exponent®

**Technical Memorandum**

**on the**

**Central Coast Regional Board's Draft Agricultural Order 4.0**

**Technical Memorandum**

**on the**

**Central Coast Regional Board's**
**Draft Agricultural Order 4.0**

Prepared for

Kahn, Soares & Conway, LLP
1415 L Street, Suite 400
Sacramento, CA 95814

Prepared by

Exponent
1055 East Colorado Boulevard, Suite 500
Pasadena, CA 91106

June 19, 2020

2002646.000 - 0851

**Technical Memorandum**
**June 19, 2020**

# Contents

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# 1. Executive Summary

BN-416

Exponent was asked to review the Draft General Waste Discharge Requirements (Draft WDRs) for Discharges from Irrigated Lands (Draft Agricultural Order 4.0, February 21, 2020), proposed by the State of California's Central Coast Regional Water Quality Control Board (Regional Board). Exponent focused on the surface water and riparian area requirements of the Draft WDRs, including the scientific basis for the requirements, whether implementation of the requirements could reasonably be expected to lead to achieving the Regional Board's stated goals and objectives, and whether the Draft WDRs could be modified to improve the likely water quality and beneficial use outcomes.

BN-417

## 1.1 Nonpoint discharges have highly variable flow rates/volumes and constituent concentrations, which necessitates watershed-based monitoring and regulatory approaches that focus on the receiving waters (not edge of field[1]).

BN-418

Agricultural discharges, like other nonpoint source discharges, exhibit far greater variability in flow rate, flow volume, and constituent concentrations than traditional point sources. This variability arises from natural factors (such as watershed characteristics, rainfall patterns, antecedent conditions, seasonality, natural sources, and daily fluctuations in ecological processes and water quality parameters), anthropogenic factors (landscape and land use changes, channel management practices), and site-specific factors (irrigation schedules, crop type, plant state, management practices, fertilizer or chemical applications). Variability is greater at the field level than at the watershed scale, because mixing and dispersion of flows from other land use types, base flows, reservoir releases, and other sources of water in addition to agricultural discharges occurs within receiving waters.

BN-419

[1] Throughout these comments, we have used the term "edge of field" to mean both edge of operation and ranch-level requirements.

BN-420

The fundamental characteristics of nonpoint flows have profound implications for regulatory programs. Nonpoint flows are different from the point source discharges that were used to develop the framework for water quality regulation in California and the US, and calculation procedures for numeric limits, water quality objectives, and monitoring strategies are based on assumptions that do not hold true for nonpoint source discharges. Similarly, there is no general method for determining whether a specific discharge of agricultural runoff "causes or contributes" to an exceedance of a water quality standard. In fact, such a determination cannot be made solely by receiving water sampling data, nor solely by discharge sampling data.

BN-421

Not only is it infeasible to develop scientifically appropriate numeric limits for agricultural discharges at the present time, but the numeric limits proposed in the Draft WDRs are flawed in several key ways. Many of the proposed numeric limits are inconsistent with the TMDLs from which they were derived – for example, exceedances of numeric limits for nutrients are prohibited by the Draft WDRs, while the underlying TMDLs allow approximately 13-17% of samples to exceed water quality objectives. Further, numeric limits for fish tissue and sediment cannot be appropriately evaluated relative to current discharges (because fish tissue and sediment contain contributions of pollutants from historical discharges), and numeric limits for constituents in the water column do not recognize key features of the water quality standards they are designed to implement.

BN-422

## 1.2 The Draft WDRs inappropriately assign responsibility for watershed concerns to individual growers, even though those concerns should be addressed holistically on a watershed level.

BN-423

The Draft WDRs require planning and implementation measures for riparian areas within or bordering ranches to "provide and continue to provide" watershed-scale functions, such as stabilizing streambanks, maintaining the base flow of streams, providing flood conveyance and storage, providing stormwater detention and purification, and maintaining potable supplies. In addition, the Draft WDRs implement as numeric limits requirements for watershed sediment loads to be reduced to specified levels.

However, these functions occur as a result of the conditions throughout an entire watershed. Addressing these requirements on a ranch-by-ranch basis would obligate growers to conduct watershed-scale analyses, control runoff and physical forces beyond the boundaries of their property, and potentially to consider and comply with a range of local, state, and federal laws and regulations that may not be directly applicable to irrigated agricultural dischargers. While it is unreasonable to expect that implementation of the Draft WDRs will result in achieving these watershed-scale goals, a watershed-based compliance approach can begin to address them.

BN-424

## 1.3 Management practices can and do improve water quality, but it is infeasible to meet the numeric limits of the Draft WDRs at the edge of field under all conditions.

BN-425

Many studies have demonstrated that management practices are effective in improving the water quality of agricultural discharges. However, few resources are available that provide specific guidance on management practice implementation, that support the selection of management practices that will meet numeric limits, or that connect directly the performance of management practices at the farm level to receiving water quality. The performance of management practices is highly site-specific and is affected by a wide range of variables, including site-specific conditions (e.g., soil, slope, climate, weather), cultivation and drainage practices, edge of field practices, in-field practices, and many additional factors. Further, available space and the configuration of fields will affect both the selection and sizing of management practices.

BN-426

Data needed to characterize the effectiveness of management practices include water quality measurements, soil characteristics and soil test results, information on crop yield, and information related to pest and nutrient management. Most available data that characterize the effectiveness of certain practices were collected for corn and soybeans, crops that are not grown widely in California, and thus additional data are needed for the land use practices and crops grown in California.

BN-427

As detailed in Section 3.3, compliance with the numeric limits of the Draft WDRs at the edge of field is infeasible. Use of an alternative approach, such as good faith engagement in the iterative process as driven by monitoring data and scientific research, is consistent with the current state of the science and with a watershed-based approach to improving water quality.

BN-428

## 1.4 The Riparian Area Management Plan (RAMP) requirements are unlikely to achieve the Regional Board's stated objectives. The setback requirements of the Draft WDRs lack a sound scientific basis, and the RipRAM tool should not be used as a regulatory requirement.

BN-429

The Draft WDRs establish setback requirements that are based on literature on setbacks in a wide range of locations, only a few of which appear to be applicable to agricultural land uses in the central coast region. Although the Draft WDRs assert that the size of a setback will depend on which water quality objectives need to be met and/or which beneficial use needs protection, the setback requirements of the Draft WDRs do not appear to analyze these factors explicitly, and guidance is not provided regarding how site-specific factors (e.g., soil type, cropping systems, stream size) will influence the efficacy of setbacks. Rather, the Draft WDRs establish generic riparian or operational setbacks that lack a solid scientific basis. We are unaware of evidence indicating that implementing setbacks as required by the Draft WDRs will result in attainment of the numeric limits of the Draft WDRs, and it does not appear that the Regional Board has assessed whether the setback requirements are feasible to implement.

BN-430

The Draft WDRs also specify the RipRAM method as one compliance option. The RipRAM method was developed to assess riparian stream health for a variety of different types of water bodies. Under the RipRAM option, the Draft WDRs require sites to achieve a RipRAM index score of 69, which is the median score derived for agricultural reference sites in high quality riparian areas—because half of the reference sites scored lower than 69, it is not appropriate to use this reference score as a regulatory threshold. Additionally, implementation of the RipRAM method is subjective, and scores are likely to vary from stream to stream, or even within the

BN-430, cont'd

same stream at different points in time. As with the proposed setback requirements, the RipRAM scoring system is not linked with meeting water quality objectives. For these reasons, it is inappropriate to use the RipRAM method as a regulatory compliance tool.

BN-431

## 1.5 The Irrigation and Nutrient Management Plan (INMP) mass balance approach for regulating discharges of nitrate is overly simplistic, will not accurately describe nutrient discharge at the ranch scale, and is likely infeasible to achieve.

BN-432

The Draft WDRs require dischargers to develop and implement an INMP to address groundwater and surface water, and to implement management practices that result in compliance with fertilizer nitrogen application limits. The nitrogen discharge targets and limits are intended to quantify excess nitrogen that may leave the site, and the Draft WDRs use two formulae to quantify this "excess nitrogen." However, the formulae were developed for discharges to groundwater; they are overly simplistic and do not account for a wide range of factors that affect nitrogen uptake and loss, including the chemical form of nitrogen fertilizer applied, the timing and extent of fertilization relative to irrigation and precipitation events, and the stage of plant growth at the time of application. Nor do they account for mineralization or volatilization rates that depend on factors such as temperature, soil moisture, and the variable composition of compost; chemical transformations; and site-specific factors such as soil type and antecedent moisture, irrigation frequency, and frequency and duration of rain events.

BN-433

Because the Draft WDRs do not account for these complex factors, calculated discharge nitrate concentrations will be different than actual discharge concentrations. While the calculation approach of the Draft WDRs may be useful in informing management decisions, this simple mass balance approach is inappropriate as a regulatory compliance mechanism.

BN-434

## 1.6 Monitoring at the ranch or field level will not provide the data and information needed to advance the regulatory program for irrigated lands.

BN-435

Highly variable systems, such as those strongly influenced by nonpoint source discharges, pose unique challenges for monitoring program design. High levels of variability make it difficult to distinguish a signal from the noise (variability) of the monitoring data and require the collection of more data to discern trends and characterize conditions within the system. These complexities are more pronounced at the individual ranch or field level than at downstream locations within a watershed.

BN-436

Discharges from irrigated lands throughout the irrigation season are spatially and temporally diffuse due to unpredictable timing of chemical application, precipitation events, irrigation schedules, and other confounding factors. Variability is greatest at small scales (e.g., at the field level), but mixing and dispersion within receiving waters attenuates this variability and increases reproducibility at the watershed scale. At the watershed scale, the attenuation of variability results in measurements that are more generally reproducible and that can be more reliably used to assess long-term trends in water quality and to assess the impact of management practices. Also, many of the goals of the Draft WDRs, such as reduced watershed sediment loads, maintaining streambank stability, and flood conveyance and storage, can only be assessed at a watershed scale (see Section 3.2).

BN-437

Because designing a robust monitoring program is logistically and technically challenging and resource-intensive, it is important to define the objectives to be addressed by a monitoring program and to determine both the sampling strategy and resources required to address questions such as:

- Which pollutants and conditions are most indicative of impacts from irrigated agriculture?

BN-437, cont'd

- What are the concentrations of key pollutants in receiving waters, and how do they vary over time?
- What water quality objectives exceedances are occurring in receiving waters over time, what is the frequency of exceedance in receiving waters, and can exceedances be tied to specific conditions (e.g., high intensity rain events, seasonal conditions)?
- How can the monitoring program be designed in a rotational manner, given resource limitations, to maximize the amount of information that can be obtained, to direct future monitoring, and to direct the implementation of management practices?

These monitoring goals can best be achieved by monitoring at the watershed scale, not at edge of field, and as part of a program of adaptive management and implementation.

BN-438

**1.7 The Agriculture WDRs must be data-driven and science-based. The Draft WDRs should be modified to include a watershed-based approach that optimizes the collection of data and information, identifies and addresses the highest priority water quality concerns, and supports targeted implementation of management practices to improve water quality efficiently.**

BN-439

Available information does not indicate that the Draft WDRs, including the numeric limits applied at edge of field, are feasible or achievable. At the same time, substantial data demonstrate that targeted, site-specific management practices improve water quality in runoff from agricultural lands. Because of the unique characteristics of nonpoint sources, watershed-based monitoring and adaptive management represent the best scientifically supported program to improve water quality and watershed health, and to gather data and information to determine goals that are feasible, achievable, and reasonable, and that optimize available resources. Reliance on data collected at edge of field often provides discontinuous data sets with significant data gaps, making data interpretation challenging. In fact, interpreting such data sets may increase the need for blanket assumptions or default values to extend locally collected, edge of field data to the watershed scale; these assumptions and default values may be borrowed

BN-439, cont'd

from studies of other land use types or other areas not representative of the central coast of California. Thus, failing to base the Draft WDRs on a holistic, watershed-based approach is likely to increase uncertainty rather than resolve it.

# 2. Introduction and Background

## 2.1 Retention

BN-440

Kahn, Soares & Conway, LLP retained Exponent on behalf of the Grower-Shipper Association of Central California to review and comment on the most recent draft Waste Discharge Requirements (Draft WDRs, also known as Agricultural Order 4.0) submitted by the State of California's Central Coast Regional Water Quality Control Board (Regional Board). In performing this work, Exponent reviewed the Draft WDRs, attachments, and related documents, as well as pertinent scientific literature.

## 2.2 Qualifications

BN-441

Dr. Susan Paulsen is a principal scientist and practice director in the Environmental and Earth Sciences Practice of Exponent, Inc. (Exponent). She is a registered civil engineer in California (C66554) with expertise that includes surface water and groundwater hydrology, movement, and water quality, and she has expertise and experience in the development and application of water quality regulations under both the federal Clean Water Act and the State's Porter-Cologne Act. Dr. Paulsen was assisted in this work by her Exponent colleagues Dr. Ben Kocar, Mr. William Goodfellow, and Dr. Roxolana Kashuba.

Dr. Ben Kocar specializes in the science of soils, sediments and water. A Certified Professional Soil Scientist (CPSS), he uses his multidisciplinary expertise in geochemistry, microbiology, and hydrogeology to solve complex problems involving the fate of chemicals and the flow of water within natural and engineered systems.

Mr. William Goodfellow is a principal scientist and practice director in the Ecological and Biological Science Practice of Exponent, Inc. A Board-Certified Environmental Scientist, Mr. Goodfellow has considerable experience addressing agriculture and land-use management issues

and assessing chemical and biological contaminants in surface water, wetlands, groundwater, soil and sediment, and their toxicological and ecological risk.

BN-441, cont'd

Dr. Roxolana Kashuba is a managing scientist in Exponent's Ecological and Biological Science Practice, with a background in water quality modeling, statistics, and environmental causal analysis and risk assessment. Her expertise includes the development, evaluation and critique of ecological models for regulatory purposes, including the ability of regulatory criteria to achieve desired ecological conditions, uncertainty analysis for linking environmental management actions to desired endpoints and ecological goals, and the effect of natural and anthropogenic environmental drivers on water quality and ecosystem biological integrity.

A current copy of the *curriculum vitae* for each of these professionals is included in Appendix A.

## 2.3 Limitations

BN-442

This technical memorandum summarizes work performed to date and presents the findings resulting from that work. The findings presented herein are made to a reasonable degree of scientific certainty, given the available data and information. Exponent reserves the right to supplement this report and to expand or modify opinions based on review of additional material as it becomes available.

## 2.4 Background and Assignment

BN-443

The Central Coast Regional Water Quality Control Board (Regional Board) has regulated irrigated agricultural discharges for over fifteen years. The first Order, Agricultural Order 1.0, was issued in 2004, and subsequent orders were issued in 2012 (Agricultural Order 2.0) and

BN-443, cont'd

2017 (Agricultural Order 3.0).[2] The most recent proposed Draft Waste Discharge Requirements[3] (Draft WDRs, also known as Proposed Agricultural Order 4.0) were released for public review and comment on February 21, 2020, and propose further monitoring, reporting, and compliance requirements for growers. The Draft Order states that these requirements are intended to achieve the following objectives:

> *"1. Protect and restore beneficial uses and achieve water quality objectives specified in the Basin Plan for commercial irrigated agricultural areas in the central coast region by:*
>
> *a. Minimizing nitrate discharges to groundwater;*
> *b. Minimizing nutrient discharges to surface waters;*
> *c. Minimizing toxicity in surface water from pesticide discharges;*
> *d. Protecting and restoring riparian and wetland habitat, and*
> *e. Minimizing sediment discharges to surface water.*
>
> *2. Effectively track and quantify achievement of 1.a. through e. over a specific, defined time schedule.*
>
> *3. Comply with the State Nonpoint Source Pollution Control Program (NPS Policy), the State Antidegradation Policy, relevant court decisions such as those pertaining to the Coastkeeper et al lawsuits, the precedential language in the Eastern San Joaquin Agricultural Order, and the other relevant statutes and water quality plans and policies, including Total Maximum Daily Loads in the central coast region."*[4]

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2 https://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/26nov2018_stakeholder_mtgs_fin.pdf.

3 State of California, California Regional Water Quality Control Board, Central Coast Region. Draft General Waste Discharge Requirements for Discharges from Irrigated Lands. Order No. R3-20XX-XXXX. February 21, 2020. (Hereafter referred to as the "Draft WDRs.")

4 Draft WDRs at p. 6.

BN-443, cont'd

Changes proposed by the Regional Board that are intended to achieve these goals for surface water discharges and riparian areas include, but are not limited to, the following new or expanded requirements:

- *All enrollees must implement management practices and submit an Annual Compliance Form (ACF) describing the management practices. All enrollees must comply with application limits, discharge limits, and receiving water limits, in accordance with time schedules, to prevent discharges of waste from causing or contributing to the exceedance of water quality objectives or the loss or degradation of beneficial uses.*

- *All enrollees with waterbodies on or adjacent to their ranch must establish an operational setback (1.5 times the width of the waterbody). Enrollees in prioritized areas with waterbodies on or adjacent to their ranch must establish a more robust riparian setback following one of four compliance pathways (the on-farm setback compliance pathway requires riparian setbacks ranging from 50 to 250 feet, depending on the waterbody).*

- *All enrollees must submit an Irrigation and Nutrient Management Plan (INMP) Summary report, which includes monitoring and reporting of nitrogen applied/removed, crop evapotranspiration, and irrigation discharge to surface water and groundwater.*

- *Enrollees whose ranches exceed the numeric discharge limits per the time schedule for groundwater protection may be required to perform ranch-level groundwater discharge monitoring, including monitoring of irrigation discharge to groundwater nitrate concentration and irrigation discharge to groundwater volume.*

BN-443, cont'd

- *A follow-up surface receiving water implementation work plan (individual or cooperative) will be required for ranches in prioritized areas that exceed the numeric limits prior to the compliance date in the time schedules for surface water protection.*
- *Enrollees in areas that exceed the numeric surface receiving water limits for surface water protection may be required to perform ranch-level surface discharge monitoring.*
- *Enrollees whose ranches have impermeable surfaces during winter on slopes equal to or greater than 5 percent must have a Sediment & Erosion Management Plan designed by a qualified professional.*[5]

BN-444

Exponent's analysis focuses on the surface water and riparian requirements of the Draft WDRs, including the scientific basis for the requirements and whether implementation of the requirements could reasonably be expected to lead to achieving the Regional Board's stated goals and objectives. Exponent also provides recommendations for modifying the Draft WDRs in order to improve the likely water quality and beneficial use outcomes.

[5] Draft General Waste Discharge Requirements for Discharges from Irrigated Lands (Draft WDRs) Draft Environmental Impact Report. February 2020. Excerpted from the summary of New or Expanded Requirements in Agricultural Order 4.0 at pp. ES-5-6.

## 3. Detailed comments

BN-445

### 3.1 Non-point discharges have highly variable flow rates/volumes and constituent concentrations, which necessitates watershed-based monitoring and regulatory approaches that focus on the receiving waters (not edge of field).

#### 3.1.1 Nonpoint source flows are different than other types of discharges.

BN-446

Nonpoint source flows, including storm flows, exhibit highly variable flow rates, flow volumes, and constituent concentrations. Variability occurs due to both natural factors[6]—for example, as a result of changing weather patterns, antecedent conditions, seasonality, natural sources, daily fluctuations in ecological processes and water quality parameters—and anthropogenic factors, such as landscape and land-use changes, sampling bias among field equipment and personnel, and laboratory and analytical variability. During storm conditions, pollutant concentrations can vary by an order of magnitude or more on timescales of an hour or less, and just as widely between storm events, or between sites in relatively close proximity. Runoff water quality is a complex function of the size of a watershed, watershed characteristics (including slope, soils, and vegetation types), rainfall (storm size and intensity), antecedent conditions (a function of the length of time between rainfall events), land use, and climate.

[6] See, for example, Stein, E.D. and V.K. Yoon 2007. Assessment of water quality concentrations and loads from natural landscapes. Southern California Coastal Water Research Project (SCCWRP) Technical Report No. 500. February. Available at ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/500_natural_loading.pdf.

Tiefenthaler, L. 2010. Assessment of water quality from natural landscapes. Symposium presentation. January 20. Available at http://ftp.sccwrp.org/pub/download/PRESENTATIONS/Symposium2010/NaturalWaterQuality_1_Tiefenthaler_WatershedReference.pdf.

Schiff, K. et al. 2010. Assessing water quality conditions in southern California's areas of special biological significance. SCCWRP 2010 Annual Report at pp. 251-260. Available at ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/2010AnnualReport/ar10_251_260.pdf.

BN-446, cont'd

At the field level, agricultural discharge flows and constituent concentrations will vary depending upon irrigation schedules, fertilizer or chemical applications, crop type, plant stage, management practices, soil characteristics, rainfall intensity, and other site-specific factors.[7] These factors and practices will vary from field to field, resulting in high variability both at an individual field over time and between fields. The variability exhibited by nonpoint sources (and agricultural runoff in particular) is poorly characterized in the literature. Individual studies typically focus on examining nutrient and pesticide concentration dynamics within receiving waters, where numerous sources may contribute to the observed concentrations and loads.

BN-447

For nutrients (e.g., nitrate), studies have shown that it is possible in some cases to identify general patterns of constituent concentrations associated with periods of high and low runoff, but stream concentrations are typically highly variable over time, spanning several orders of magnitude at the same rate of stream flow and calculated runoff.[8] Other studies have recognized complex relationships between multiple sources, including both non-agricultural sources and/or historical (legacy) agricultural sources not associated with current discharges, and constituent concentrations in receiving waters, such that it is difficult to draw generalized conclusions about the sources of and factors affecting concentrations of those constituents.[9]

BN-448

[7] The SWRCB's Agricultural Expert Panel identified several additional sources of variability that can influence water quality data and regulatory approaches for irrigated lands: "the timing of individual sample collection might not coincide with pesticide applications, or with events of high sediment runoff. It is difficult to identify, in advance, exactly when (time of day and day) there might be surface runoff. This is because irrigation schedules constantly change as [agricultural] field crews shift operations." See Irrigation Training & Research Center, California Polytechnic State University (Cal Poly), Conclusions of the Agricultural Expert Panel: Recommendations to the State Water Resources Control Board pertaining to the Irrigated Lands Regulatory Program. Sept 9, 2014. p. 40.

[8] For example, see Goodridge, B.M. and J.M. Melak, 2012. Land use control of stream nitrate concentrations in mountainous coastal California watersheds. Journal of Geophysical Research. 117, G02004.

BN-449

[9] See T.P. Chapin et al, 2004. Nitrate Sources and Sinks in Elkhorn Slough, California: Results from Long-term Continuous in situ Nitrate Analyzers. Estuaries. 27 (5) 882-894. Chapin et al. performed a study in Azevedo Pond (adjacent to agricultural fields) in Elkhorn Slough, California, and measured nitrate, temperature, salinity, dissolved oxygen, turbidity, and depth continuously over time. They found evidence of nitrate discharge from the adjacent fields only during a few high precipitation events, suggesting that surface or groundwater runoff in other regions of Elkhorn Slough were the source of higher nitrate waters.

See also J.M. Caffrey et al. 2007. High Nutrient Pulses, tidal mixing, and biological response in a small California estuary: Variability in nutrient concentrations from decadal to hourly scales. Estuarine, Coastal and

BN-450

Similar to nutrients, studies examining pesticide inputs to surface waters in agricultural watersheds highlight the difficulties in determining specific factors governing discharge to receiving waters. Studies have described the high variability in constituent concentrations and the multiple factors that are likely to determine concentrations in receiving waters, including the timing of application, pesticide formulation, initial placement, storm/irrigation event characteristics, soil characteristics, and management practices.[10] These studies have also found variable concentrations during "first flush" rainfall events, indicating that peak concentrations do not always occur during the first rainfall event; rather, peak concentrations are a function of factors such as rainfall intensity and the intensity and amount rainfall that occurred on that area in the previous weeks.[11]

BN-451

As these studies demonstrate, there is high variability both in discharges from individual fields and in receiving waters. However, variability is generally lower in receiving waters because they carry flows from multiple sources, including discharges from many agricultural fields and from other land use types, in addition to base flows, reservoir releases, and other sources of water.

BN-452

The inverse relationship between variability and drainage area size is pronounced for storm flows, where greater variability is observed for small areas than for large areas. In large watersheds, storm water runoff may take days to reach the watershed outlet from a field near the top of the watershed, but only hours to reach the watershed outlet from a field or other land use located near the bottom of the watershed.[12] Thus, the source of water within a stream will

BN-449, cont'd

Shelf Sciences (71) 368-380. This follow up study cited rainfall events, lag times following rainfall events, mixing with tidal waters, and biological activity as processes controlling nitrate and phosphate concentrations throughout Elkhorn Slough, and the relative influence of these processes differed from location to location within the study area.

[10] See, for example, J.A. Pedersen et al. 2006. Organophosphorus Insecticides in Agricultural and Residential Runoff: Field Observations and Implications for Total Maximum Daily Load Development. Environmental Science and Technology. 40, 2120-2127.

[11] Ibid.

BN-453

[12] The "time of concentration" of a watershed is defined as the length of time needed for water to flow from the uppermost reach of a watershed to the watershed outlet. It is a function of the characteristics of the watershed,

BN-452, cont'd

change as a function of time: water at the outlet of a watershed will be composed primarily of runoff from the lower portions of the watershed early in a runoff event, with water from the upper reaches of a watershed reaching the outlet of the watershed later in a runoff event. Base flows will provide a smaller fraction of flow in a stream during runoff events than during dry weather conditions.

BN-454

Just as flows from various portions of the watershed are integrated and mix within the receiving water, so do the concentrations of water quality constituents. Constituent concentrations will vary as a function of time in discharges from fields and other land use types, and water from the various sources will mix in the receiving water. The peak constituent concentrations in runoff from an individual field near the watershed outlet will flow out of the watershed early in the storm event, while the peak concentrations in runoff from a different field near the headwaters will reach the watershed outlet late in the storm event. Thus, the peak concentrations of runoff from different agricultural fields will arrive in receiving waters at different times and will mix with other flows in the stream. In general, mixing and dispersion attenuate both flows and concentrations, and these effects are greater in larger systems (which have a larger number of discrete inputs) than in smaller systems. Thus, the variability in water quality concentrations will typically be greatest at the field scale and will decrease as watershed size increases.[13]

BN-453, cont'd

including the length, slope, and land use of the watershed, and, when these factors are comparable, is greater for large watersheds than for small watersheds. Sharifi, S., Hosseini, M.S., 2011. Methodology for identifying the best equations for estimating the time of concentration of watersheds in a particular region. J. of Irrigation and Drainage Engineering 137(11): 712-719.

BN-455

[13] Note that similar behavior is also observed in other types of systems and is a significant component of treatment system design. For example, variability in constituent concentrations is inversely correlated to sewershed size, and large conveyance systems (akin to large watersheds) help reduce influent variability to wastewater treatment plants. The reduction in influent concentration variability results from dispersion and mixing in the conveyance system, which dampens the variability observed in individual inputs. For example, wastewater flows and constituent concentrations from an individual house or business may vary significantly if the occupants go on vacation, have a large number of houseguests, or take up a hobby (such as photography) that increases household chemical use. These variations are dampened significantly when flows from individual houses mix within the distribution system, and flows and concentrations at the treatment facility (at the bottom of the conveyance system, akin to the outlet of a watershed) exhibit far less variability. For additional discussion, see, e.g., Teerlink, J., A.S. Hering, C. P Higgins, and J.E. Drewes, 2012. Variability of trace organic

BN-456

In effect, receiving waters integrate flows and constituent concentrations from a wide range of sources throughout a watershed. As detailed below, these fundamental characteristics of nonpoint flows have profound implications for regulatory programs for nonpoint sources such as agricultural discharges, including for collecting and interpreting environmental data and implementing effective regulatory programs.[14]

BN-457

### 3.1.2 Water quality objectives were developed for specific purposes under Porter-Cologne and apply in the receiving water. Direct application to nonpoint sources is inappropriate.

BN-458

Section 13241 of Porter-Cologne requires a Regional Water Quality Control Board (Regional Board) to consider certain factors when adopting water quality objectives, as follows:

> "*factors to be considered by a regional board in establishing water quality objectives shall include, but not necessarily be limited to, all of the following:*
>
> *(a) Past, present and probable future beneficial uses of water.*
> *(b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.*
> *(c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.*
> *(d) Economic considerations.*
> *(e) The need for developing housing within the region.*
> (f) *The need to develop and use recycled water*."

Section 13242 states that:

BN-455, cont'd

chemical concentrations in raw wastewater at three distinct sewershed scales. Water Research 46(10):3261-3271.

[14] Barbour, M.T. et al. 1999. Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish, 2nd Edition. U.S. Environmental Protection Agency, Office of Water. EPA 841-B-99-002.

BN-458, cont'd

"*the program of implementation for achieving water quality objectives shall include, but not be limited to:*

*(a) A description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private.*
*(b) A time schedule for the actions to be taken.*
(c) *A description of the surveillance to be undertaken to determine compliance with objectives*."

When a Regional Board adopts Waste Discharge Requirements (WDRs), Section 13263 requires that "the requirements shall implement any relevant water quality control plans that have been adopted, and shall take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to protect nuisance, and the provisions of Section 13241."[15]

When the Regional Board first adopted water quality objectives into the Water Quality Control Plan (Basin Plan) for the Central Coast region in 1975, it performed detailed analyses of the methods and costs of compliance for point source discharges such as discharges from publicly owned treatment works (POTWs).[16] However, the Regional Board classified agricultural discharges as nonpoint source discharges and concluded that "effluent limits and facility requirements are not applicable to most non-point wastewater sources."[17] The Regional Board

[15] See also Finding 8 of the Draft WDRs at p. 7, which reiterates this obligation.

[16] State Water Resources Control Board, 1975. Water Quality Control Plan Report, Central Coast Basin (3). At pp. 5-1 through 5-27.

BN-459

[17] Ibid. at p. 5-29. Note that the current Central Coast Basin Plan continues to define agricultural runoff as a nonpoint source. The 2019 Basin Plan states that "The distinction between point sources and diffuse sources is not always clear but generally applies to the practicality of wasteload control," and notes that "Controllable water quality shall conform to the water quality objectives contained herein. When other conditions cause degradation of water quality beyond the levels or limits established as water quality objectives, controllable conditions shall not cause further degradation of water quality. Controllable water quality conditions are those actions or circumstances resulting from man's activities that may influence the quality of the waters of the State and that may be reasonably controlled." See Regional Water Quality Control Board, Central Coast Region, 2019. Water Quality Control Plan for the Central Coastal Basin. June. At p. 29-30.

BN-458, cont'd

limited its discussion of agricultural controls to "recommended improvements in practices and to the scope of federal-state permit programs which will regulate certain agricultural activities. The discussion of practices is limited here to animal confinement and irrigation practices [for salt management] … Pesticide use and limits on fertilizer applications are not specifically considered here; these materials are covered by appropriate water quality objectives" which apply in the receiving water.[18]

BN-460

Thus, when water quality objectives were initially adopted into the Region's Basin Plan, the Regional Board did not contemplate that the objectives would be used to calculate numeric effluent limits for discharges from non-point sources such as agricultural runoff (i.e., they did not contemplate that WQO would be applied at edge of field). In fact, the Regional Board expressly stated that effluent limits were not applicable to non-point sources such as agricultural discharges, and the Regional Board did not evaluate the Porter-Cologne Section 13241 factors or develop a "program of implementation for achieving water quality objectives" as required by Section 13242 for nonpoint sources. To our knowledge, the Regional Board did not consider these factors as related to the application of water quality objectives to nonpoint or agricultural discharges in subsequent updates to water quality objectives of the Basin Plan, nor did the Regional Board determine the water quality conditions "that may reasonably be controlled."

BN-461

The Regional Board also failed to consider the full range of factors when developing the Draft WDRs. As detailed in a section entitled "Cost Considerations" within the Fact Sheet for the Draft WDRs, "CWC section 13263 requires the Central Coast Water Board to take into consideration the provisions of CWC section 13241 in adopting waste discharge requirements. The following findings discuss the potential change in regulatory costs between the 2017 agricultural order (Ag Order 3.0) and this Order (Ag Order 4.0)."[19,20] Costs analyzed by the

[18] State Water Resources Control Board, 1975. Water Quality Control Plan Report, Central Coast Basin (3). At pp. 5-1 through 5-27.at p. 5-31.

[19] Attachment A to the Draft WDRs at Finding 13, p. 9.

[20] See also City of Burbank v. State Water Resources Control Board, Supreme Court of California, April 4, 2005. (2005) 35 Cal.4th 613.

BN-461, cont'd

Regional Board include costs to complete the Annual Compliance Form (ACF), the Total Nitrogen Applied (TNA) Report, the INMP Summary Report; costs for groundwater monitoring groundwater trend monitoring, surface water trend monitoring, and follow-up surface receiving water monitoring; and partial costs for developing a sediment and erosion management plan (SEMP), riparian compliance options, and potential costs for acres that would potentially be taken out of production pursuant to setback requirements. Thus, it may be argued that the Regional Board conducted a limited analysis of Porter-Cologne section 13241(d) (economic considerations), without considering the cost of implementing the substantive requirements of the Draft WDRs.

BN-462

However, we find no evidence that the Regional Board fully considered all economic impacts or the remaining Porter-Cologne section 13241 factors in establishing the requirements of the Draft WDRs, including in applying water quality objectives as numeric effluent limitations. The Regional Board does not appear to have evaluated 13241(b) (the environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto) or 13241(c) (the water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality within the area). The Draft WDRs do not appear to have been developed consistent with a "program of implementation for achieving the water quality objectives," as required by section 13242. Thus, the Regional Board has not considered the required factors before developing the Draft WDRs and applying water quality objectives as numeric limits. As detailed in Section 3.6, the Regional Board has not established that it is feasible or necessary to achieve water quality objectives at edge of field.

BN-463

It is important to recognize that water quality objectives apply within the receiving water and *not* to individual discharges before they enter the receiving water. Thus, water quality objectives should not be applied to discharges leaving an individual agricultural field. As discussed in Section 3.3 below, the Regional Boards and USEPA typically follow a calculation process to develop numeric effluent limits for point source discharges; the Regional Board did not follow such a calculation process in developing the Draft WDRs. The Regional Board has not

BN-463, cont'd

considered the variability of flow rates and constituent concentrations in nonpoint sources such as agricultural discharges, and has not evaluated whether it is necessary or feasible to meet water quality objectives in runoff from individual agricultural fields in order to achieve water quality objectives in the receiving water.

BN-464

Of course, when the receiving water does not attain water quality objectives, it is necessary to take action to address the situation, but those actions are more appropriately considered at the watershed level (not edge of field). See also Sections 3.6 and 3.7.

BN-465

**3.1.3 It is not currently possible to calculate technically appropriate numeric limits applicable to agricultural discharges. In no case should the numeric limits of the Draft WDRs be applied to discharges at edge of field.**

BN-466

In contrast to nonpoint sources, traditional point source discharges, such as treated municipal wastewater and industrial process water discharges, typically exhibit far less variability in terms of flow volumes, flow rates, and constituent concentrations, and fewer factors affect variability in these parameters. Under the Clean Water Act (CWA), discharges from traditional point sources are typically regulated using either (a) technology-based strategies that require traditional point source dischargers (e.g., wastewater treatment plants, industrial dischargers) to meet concentration standards for certain pollutants within the effluent (e.g., secondary treatment standards for discharges of municipal wastewater from publicly owned treatment works (POTWs)) or within a zone of initial dilution in the receiving waters, or (b) water quality-based strategies that rely upon evaluating ambient (receiving water) water quality and limiting the quantity of pollutants in discharges to levels that do not adversely affect designated beneficial uses.

BN-467

The Water Quality Act of 1987 amended the CWA to add a program for certain storm water discharges, including discharges associated with industrial activity, discharges from municipal separate storm sewer systems (MS4 systems, including dry weather discharges), and discharges

BN-467, cont'd

determined to cause or contribute to violations of water quality standards.[21] In 1991, the USEPA published the Technical Support Document for Water Quality-based Toxics Control (TSD),[22] which provided procedures for determining if a discharge exhibits "reasonable potential to cause or contribute to an excursion above a State water quality standard," plus procedures for calculating effluent limitations[23] based upon the characteristics of the discharge. In general, the calculation procedures assume steady-state conditions, where effluent flow and loading are assumed to be constant. The TSD makes assumptions about the characteristics of an effluent (e.g., assuming that the statistical distribution of concentration data is normally or log-normally distributed)[24] and assumes critical low flow conditions in the receiving water.[25] The TSD procedures also consider the frequency, magnitude, and duration of the water quality objectives themselves. The calculation procedures used by the State of California to compute numeric limits for point source discharges are derived directly from, and make the same assumptions, as those described in the TSD.[26]

BN-468

In contrast to traditional point sources, the EPA TSD describes the difficulty of developing requirements for nonpoint sources, noting for example, that "[load allocations] for nonpoint sources are difficult to assess because the information needed to describe the runoff associated

[21] United States. 1987. Water Quality Act of 1987. Pub.L. 100-4, February 4. 33 U.S.C. § 1251 et seq.

[22] U.S. Environmental Protection Agency (USEPA). 1991. Technical Support Document for Water Quality-based Toxics Control. Office of Water Enforcement and Permits, Office of Water Regulations and Standards. EPA/505/2-90-001. March.

BN-469

[23] USEPA defines the term "effluent limitation" to mean "any restriction established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, or other constituents which are discharged from **point sources** into navigable waters, the waters of the contiguous zone, or the ocean, including schedules of compliance." (emphasis added) See https://www.epa.gov/cwa-404/clean-water-act-section-502-general-definitions.

[24] U.S. Environmental Protection Agency (USEPA). 1991. Technical Support Document for Water Quality-based Toxics Control. Office of Water Enforcement and Permits, Office of Water Regulations and Standards. EPA/505/2-90-001. March. At p. 95.

[25] U.S. Environmental Protection Agency (USEPA). 1991. Technical Support Document for Water Quality-based Toxics Control. Office of Water Enforcement and Permits, Office of Water Regulations and Standards. EPA/505/2-90-001. March. At pp. 72-73.

[26] State Water Resources Control Board, 2005. Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (also known as the "State Implementation Policy" or SIP).

BN-468, cont'd

with high-flow storm events does not exist. This lack of information is due to the high variability of the events. Because of the importance of estimating the nonpoint contributions to the waterbody, site-specific models may be required to estimate nonpoint source loadings. Even then, detailed models are difficult to calibrate with accuracy without intensive monitoring studies, and simplistic correlations between loadings and rainfall can be, by their statistical nature, unreliable for estimating low-frequency events…"[27] For situations where the default assumptions underlying the calculation procedures do not apply, the TSD describes dynamic modeling techniques that can be used to "explicitly predict the effects of receiving water and effluent flow and concentration variability" and which "calculate a probability distribution for [receiving water conditions] rather than a single, worst-case concentration based on critical conditions. Prediction of complete probability distributions allows the risk inherent in alternative treatment strategies to be directly quantified."[28,29]

[27] U.S. Environmental Protection Agency (USEPA). 1991. Technical Support Document for Water Quality-based Toxics Control. Office of Water Enforcement and Permits, Office of Water Regulations and Standards. EPA/505/2-90-001. March. At p. 68.

[28] U.S. Environmental Protection Agency (USEPA). 1991. Technical Support Document for Water Quality-based Toxics Control. Office of Water Enforcement and Permits, Office of Water Regulations and Standards. EPA/505/2-90-001. March. At pp. 79-80.

BN-470

[29] In 2006, the SWRCB convened a "Blue Ribbon Panel" of storm water experts to examine the feasibility of developing numeric limits for storm water associated with municipal, industrial, and construction activities. Although storm water discharges from these sources are legally considered to be "point source" discharges, they exhibit far greater variability than traditional point source discharges, and it has been unclear whether numeric effluent limitations can be developed for them. The Blue Ribbon Panel concluded generally that it is not feasible, except in very limited and specific circumstances, to establish numeric limits for storm water discharges. The Panel found that establishing numeric limits would require a reliable database describing effluent water quality and performance of best management practices, and that for some discharges, numeric limits might be feasible only if chemical addition and active treatment technologies were permitted.

The same factors and technical considerations evaluated by the SWRCB's Blue Ribbon Panel are applicable to agricultural runoff. Both agricultural runoff and regulated storm flows experience greater variability than traditional point source discharges. Fewer data are available to describe runoff flows and water quality from these types of sources. The assumptions underlying the methodology used by USEPA and the State to calculate numeric limits (or translate narrative objectives) for point source discharges are generally inapplicable to storm water discharges. Finally, it has not been established that numeric limits are feasible for certain discharges absent chemical addition and advanced treatment. In sum, the state's Blue Ribbon Panel concluded that it is generally infeasible at the current time to calculate scientifically appropriate numeric limits applicable to storm water discharges.

See Currier, B., G. Minton, R. Pitt, L. Roesner, K. Schiff, M. Stenstrom, E. Strassler, E. Strecker. 2006. Storm Water Panel Recommendations to the California State Water Resources Control Board, the Feasibility of

BN-471

As described herein, the numeric limits proposed in the Draft WDRs were not derived using any calculation procedure to "translate" TMDL requirements or water quality objectives, and the Regional Board has not performed dynamic modeling or other analyses to understand or describe "the effects of receiving water and effluent flow and concentration variability." Rather, the Regional Board simply "cut and pasted" water quality objectives and TMDL targets into the Draft WDRs as numeric limits, and inserted language prohibiting discharges from exceeding those limits. The Regional Board did not consider important factors including (but not limited to) flow and concentration in the receiving water; the variability or characteristics of the effluent; the technical factors used to derive the water quality objectives themselves, including the frequency, magnitude, and duration of exceedance; physical and/or chemical transformations that may occur in the environment; or the contribution of non-regulated land uses and natural sources to exceedances in the receiving water. As described in Section 3.1.2, the Regional Board similarly did not evaluate if available management practices or the proposed requirements of the Draft WDRs will be sufficient to attain water quality objectives in the receiving waters, as required by Porter-Cologne sections 13263 and 13241, or at edge of field. For these reasons, the numeric limitations of the Draft WDRs are scientifically and technically inappropriate.

BN-472

### 3.1.4 Whether a specific discharge of agricultural runoff "causes or contributes" to a water quality standard cannot be determined solely by effluent sampling data or solely by receiving water sampling data.

BN-473

The Draft WDRs require that discharges shall not "cause or contribute" to an exceedance of a pollutant's surface receiving water limit in accordance with the compliance schedule for that

BN-470, cont'd

Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities. June 19.

limit,[30] and, after a compliance schedule passes, specify that the "discharge of pollutants from a ranch in excess of the applicable limits … is prohibited."[31]

BN-473, cont'd

However, determining whether a discharge "causes or contributes" to an exceedance of a water quality standard in receiving waters is a complex undertaking. As described above, there is no generally accepted methodology for making this determination for flows from nonpoint sources, in part because the assumptions that form the foundation for a traditional reasonable potential analysis are inapplicable for flows from nonpoint sources.

BN-474

Because receiving waters collect runoff from many sources and many land use types, it would be inappropriate and arbitrary to conclude that an exceedance of numeric limits in the receiving water means that an individual rancher is out of compliance with the terms of the Draft WDRs or has violated the receiving water limitations of the Draft WDRs. It would also be inappropriate to conclude based solely on an exceedance of the numeric limits in the Draft WDRs in ranch-level surface discharges that the rancher has caused or contributed to an exceedance of the receiving water limits of the Draft WDRs. Given the variability inherent in constituent concentrations and flow rates in receiving waters and nonpoint source discharges, far more information would be required to evaluate if an individual discharger has caused or contributed to exceedances in the receiving water.

BN-475

[30] For example, the Draft WDRs state, "Except in compliance with the time schedules in this Order, Dischargers must not cause or contribute to exceedances of applicable water quality objectives, as defined in Attachment A, must protect all beneficial uses for inland surface waters, enclosed bays, and estuaries …, and must prevent nuisance …" (Draft WDRs at pp. 47-48). The Draft WDRs include findings that further state, "This Order regulates discharges of waste from irrigated lands by requiring individuals subject to this Order to comply with the terms and conditions set forth herein to ensure that such discharges do not cause or contribute to the exceedance of any regional, state, or federal numeric or narrative water quality objectives or impair any beneficial uses in waters of the state and of the United States." (Draft WDRs at p. 6). As described in the Draft WDRs at pp. 30-31, these receiving water limits include those derived from TMDLs and those derived from sources other than TMDLs, including both water quality objectives and anti-degradation requirements. Dischargers in areas that do not achieve an applicable limit may be required to perform ranch-level surface discharge monitoring and reporting.

[31] See, e.g., Draft WDRs at p. 34.

BN-476

To determine whether an individual discharge has "caused or contributed" to an exceedance observed in the water column, information would be required to characterize flows and concentrations in the receiving water body and in discharges to that water body, together with information that describes the mixing that occurs within the receiving water body and the timing of the exceedance. The rate of flow and constituent concentrations in the discharge over time and the travel time from the point of discharge to the receiving water monitoring location. Where relevant, chemical and/or physical transformations (e.g., settling of sediment-bound constituents, photolysis or chemical loss) should be evaluated between the point of discharge and the receiving water monitoring location. If it is first established that the receiving water has exceeded an applicable standard at a given time and place, it would then need to be established that a given discharge contributed both flow and pollutants to the receiving water when the receiving water exceedance occurred: a discharge from an individual field can "cause or contribute" to an exceedance of a water quality standard only if that discharge is present in the receiving water in relevant amounts at the time and location of the exceedance. Making determinations such as these would require not only an extensive amount of monitoring data (likely considerably more data than could be reasonably or feasibly collected;[32] see Section 3.6) but also would require either modeling or a highly detailed and integrated understanding of mixing, dispersion, and travel times of the watershed.

BN-477

Determining if a discharge has "caused or contributed" to an exceedance of receiving water limits applicable to sediments or fish tissue is far more complex, as the behavior of pollutants within sediments and the food chain is complex. Pollutants may be present in the sediments of streams from both past and current discharges, and pollutants may accumulate in the food chain over long periods of time. Further, no relationship has been established to describe the contribution of pollutants from a given discharge to concentrations of the pollutant in stream sediments or organisms.

[32] Porter-Cologne section 13267(b)(1) requires that "the burden, including costs, of these [monitoring] reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports."

BN-478

The SWRCB has previously recognized the challenges of determining if a discharge has "caused or contributed" to water quality standards exceedances. For example, the State Water Board included language in the 2015 Industrial General Permit that regulates storm flows from industrial facilities as follows: "This General Permit requires compliance with receiving water limitations based on water quality standards. The primary receiving water limitation requires that industrial stormwater discharges and authorized NSWDs [non-storm water discharges] not cause or contribute to an exceedance of applicable water quality standards. Water quality standards apply to the quality of the receiving water, not the quality of the industrial storm water discharge. Therefore, **compliance with the receiving water limitations generally cannot be determined solely by the effluent water quality characteristics**."[33] (emphasis added)

BN-479

### 3.1.5 The numeric limits of the draft WDRs are scientifically unsupported and inappropriate.

BN-480

The Draft WDRs proposed by the Central Coast Regional Board do not use any calculation methodology to derive the proposed numeric limits – rather, they incorporate TMDL-derived values (TMDL targets or load allocations), water quality objectives, or (for pesticides) a range of values derived from literature, directly into the Draft WDRs as values never to be exceeded, often with a time schedule. Initially these requirements would be evaluated in the receiving water, but "dischargers in areas that do not achieve an applicable limit … in the surface water by the compliance date may be required to perform ranch-level surface discharge monitoring and reporting and must achieve the applicable limit … for the discharge from their ranch."[34]

BN-481

As described above, an exceedance of a numeric limit in the receiving water does not indicate that any specific discharge upstream of the monitoring location "caused or contributed" to the exceedance. Similarly, an exceedance of a numeric limit at an individual ranch-level discharge point does not indicate that the discharge has "caused or contributed" to an exceedance in the

[33] State Water Resources Control Board, 2014. General Permit for Storm Water Discharges Associated with Industrial Activities. Adopted April 1, 2014, and effective on July 1, 2015. At p. 4-5.

[34] See, e.g., Draft WDRs at p. 34.

BN-481, cont'd

receiving water. Far more information would be needed to determine if a discharge has caused or contributed to a receiving water limit exceedance (see also Section 3.1.4).

BN-482

As a primary matter, because the Regional Board has not considered factors identified by USEPA, the SWRCB, or the SWRCB's Blue Ribbon Panel in establishing numeric limits for the Draft WDRs, the numeric limits of the Draft WDRs are technically and scientifically unsupported in a general sense. Exponent has also reviewed a subset of the individual numeric limits and found them to be flawed with respect to accurately reflecting the TMDLs and water quality objectives from which they were derived. Several examples are provided below.

BN-483

***Example 1. Numeric limits for nutrients are inconsistent with the TMDLs from which they were derived.***

BN-484

The Draft WDRs implement certain nutrient TMDLs in the form of effluent limitations, even though the TMDLs themselves allow for multiple ways of demonstrating compliance with the TMDL load allocations. For example, the TMDL for nitrate in the Arroyo Paredon Creek Watershed[35] sets load allocations applicable to irrigated agriculture equivalent to the TMDL target of 10 mg/L $NO_3$ as N. The TMDL then specifies that,

> "*current requirements in the Agricultural Order that will achieve the load allocations include:*
>
> a. *Implement, and update as necessary, management practices to reduce nutrient loading.*
> b. *Maintain existing, naturally occurring, riparian vegetative cover in aquatic habitat areas.*

[35] California Regional Water Quality Control Board, Central Coast Region, 2013. Total Maximum Daily Load for Nitrate in Arroyo Paredon Watershed in Santa Barbara County, California. Final Project Report. December. Approved by USEPA on February 13, 2014. https://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/docs/arroyo_paredon_nitrate/1ap_tmdl_nitrate_att2_projrpt_final_12-05-2013.pdf

BN-484, cont'd

c. *Develop and update and implement Farm Plans. The Farm Plans should incorporate measures designed to achieve load allocations assigned in this TMDL.*
d. *Implement monitoring and reporting requirements described in the Agricultural Order."*[36]

The TMDL further stated that,

> "*To allow for flexibility, Central Coast Water Board staff will assess compliance with load allocations using one or a combination of the following:*
>
> A. *Attaining the load allocations in receiving waters.*
> B. *Demonstrating quantifiable receiving water mass load reductions;*
> C. *Implementing management practices that are capable of achieving load allocations identified in this TMDL;*
> D. *Providing sufficient evidence to demonstrate that they are and will continue to be in compliance with the load allocations; such evidence could include documentation submitted by the owner or operator to the Executive Officer that the owner or operator is not causing waste to be discharged to impaired waterbodies resulting or contributing to violations of the load allocations.*"[37]

Thus, when the TMDL was adopted, the Regional Board allowed for implementation of management measures as a means to demonstrate compliance with the load allocations of the TMDL. The Regional Board did not require implementation of the TMDL in the form of numeric limits, and dischargers had no reason to expect implementation in that manner.

BN-485

The Regional Board clarified what it meant by "attaining the load allocations in receiving waters" in footnotes in several nutrient TMDLs. For example, footnote B to Table 4.9.20-3 of the TMDLs for Nitrogen and Phosphorus Compounds in Streams of the Franklin Creek Watershed specifies, "Achievement of final wasteload and load

[36] Ibid. at p. 27.
[37] Ibid. at p. 28.

BN-485, cont'd

allocations to be determined on the basis of the number of measured exceedances and/or other criteria set forth in Section 4 of the *Water Quality Control Policy for Developing California's Clean Water Act section 303(d) List*, September 2004, amended February 2015 (Listing Policy)."[38] The State's Listing Policy provides a statistical framework for evaluating whether a water body is in attainment with the applicable water quality objectives. The number of allowable exceedances is based upon the total number of available samples; for conventional pollutants such as nutrients, the Listing Policy allows de-listing if no more than about 13-17% of samples exceed the applicable water quality criterion (see Figure 1). Thus, a prohibition on discharges that exceed the numeric limits in the Draft WDRs, which would require that no samples (0% of samples) exceed the numeric limits, is far more stringent than the underlying nutrient TMDLs.

[38] Central Coast Regional Water Quality Control Board, 2018. Resolution No. R3-2018-0006. Amending the Water Quality Control Plan for the Central Coastal Basin to Adopt Total Maximum Daily Loads for Nitrogen and Phosphorus Compounds in Streams of the Franklin Creek Watershed. At p. 5 of Attachment A. https://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/docs/carpinteria_marsh/b_att_1.pdf at p. 5.

BN-485, cont'd

TABLE 4.2: MAXIMUM NUMBER OF MEASURED EXCEEDANCES ALLOWED TO REMOVE A WATER SEGMENT FROM THE SECTION 303(D) LIST FOR CONVENTIONAL OR OTHER POLLUTANTS.

*Null Hypothesis: Actual exceedance proportion > 25 percent.*
*Alternate Hypothesis: Actual exceedance proportion < 10 percent.*
*The minimum effect size is 15 percent.*

| Sample Size | Delist if the number of exceedances equal or is less than |
|---|---|
| 26 – 30 | 4 |
| 31 – 36 | 5 |
| 37 – 42 | 6 |
| 43 – 48 | 7 |
| 49 – 54 | 8 |
| 55 – 60 | 9 |
| 61 – 66 | 10 |
| 67 – 72 | 11 |
| 73 – 78 | 12 |
| 79 – 84 | 13 |
| 85 – 91 | 14 |
| 92 – 97 | 15 |
| 98 – 103 | 16 |
| 104 – 109 | 17 |
| 110 – 115 | 18 |
| 116 – 121 | 19 |

**Figure 1. Maximum number of exceedances allowed to remove a water segment on the Section 303(d) list for conventional or other pollutants. Reproduced from State Listing Policy Table 4.2.[39]**

BN-486

***Example 2. Numeric limits for fish tissue cannot be appropriately evaluated relative to current discharges.***

Table C.3-1 of the Draft WDRs includes numeric limits for fish tissue for four constituents (chlordane, DDTs, dieldrin, and toxaphene) from the Santa Maria River

[39] State Water Resources Control Board. *Water Quality Control Policy for Developing California's Clean Water Act section 303(d) List*, September 2004, amended February 2015 (Listing Policy).

BN-486, cont'd

Watershed Toxicity and Pesticide TMDL, with a compliance date of 2044.[40] Footnote 6 of Table C.3-1 specifies that "[c]ompliance with the fish tissue limits will only be assessed as receiving water limits, not discharge limits." However, the Draft WDRs require that dischargers must not cause or contribute to an exceedance of these limits (including receiving water limits). These four constituents have been banned from use by USEPA for over three decades, and it is likely that a significant portion of the mass of these constituents in fish tissues (and sediments) in the receiving water body are derived from historical, not current, discharges. Bioaccumulation of these pollutants through food webs is complex and requires an understanding of the location of pollutants, the uptake of pollutants into the base of the food chain, the prey (feeding) habits of fish, and additional factors such as the age and life history of fish. Thus, it is not clear how the role of current discharges in contributing to fish tissue concentrations could be determined, or how an individual rancher would assess whether current discharges contribute to an exceedance of receiving water limits for fish tissue.

BN-487

Importantly, footnote 6 to Table C.3-1 specifies that the fish tissue limits will only be assessed as receiving water limits, not discharge limits. The language of footnote 6 appears to indicate that all other limits in Table C.3-1 will be assessed as discharge limits.[41]

[40] Draft WDRs at pp. 71-72.

BN-488

[41] The Draft WDRs alternately refer to the numeric limits as receiving water limits and, at the same time, treat them as effluent limits. For example, the Draft WDRs state, "Planning and management practice implementation that result in compliance with the surface water limits in Table C.3-1 and Table C.3-2 that apply to their ranch based on the ranch location." (Draft WDRs at p. 33, emphasis added) The Draft WDRs also specify that "dischargers … must not cause or contribute to an exceedance of the pollutant's surface receiving water limit in Table C.3-1 …or in Table C.3-2 …" (Draft WDRs at p. 33, emphasis added). Yet the Draft WDRs also state that "Dischargers in areas that do not achieve an applicable limit in Table C.3-1 or Table C.3-2 in the surface receiving water by the compliance date may be required to perform ranch-level surface discharge monitoring and reporting and must achieve the applicable limit … for the discharge from their ranch." (Draft WDRs at p. 34, emphasis added), and "The discharge of pollutants from a ranch in excess of the applicable limits after the compliance date in Table C.3-1 or Table C.3-2 is prohibited …" (Draft WDRs at p. 34, emphasis added), which is effectively an effluent limitation.

BN-489

***Example 3. Numeric limits for pesticides in the water column do not recognize important components of the objectives they implement and thus are not properly computed.***

BN-490

As described in Table C.3-1 of the Draft WDRs, numeric limits for certain pesticides are expressed in the form of toxic units (TU) and as concentration-based limits. For example, the Arroyo Paredon Diazinon TMDL and the Lower Salinas River Watershed Chlorpyrifos and Diazinon TMDL are the source of limits for the constituent "Additive Toxicity (Chlorpyrifos and Diazinon)" in the water column, with a limit of "Sum of Additive Toxicity, TU ≤ 1.0." The Draft WDRs derived from this TMDL also include a numeric limit for diazinon, expressed both as criterion continuous concentration (CCC, or chronic) and criterion maximum concentration (CMC, or acute) exposure concentrations (0.10 and 0.16 µg/L, respectively).

The Draft WDRs specify that exceedances of these numeric limits after the identified compliance date are "prohibited,"[42] in effect specifying that these numeric limits are never to be exceeded. This prohibition approach fails to consider the frequency, magnitude and duration of the underlying TMDL targets—considerations that, together with other factors, are used in USEPA and SWRCB procedures to compute numeric effluent limitations for toxic pollutants from point sources. Although the TMDL specifies that the CMC is an acute (1-hour average) concentration and the CCC is a chronic (4-day [96-hour] average), both of which are "[n]ot to be exceeded more than once in a three year period,"[43] a blanket prohibition fails to allow any exceedances at all, which is particularly important given the high degree of variability typical of nonpoint

[42] Draft WDRs at p. 34.

BN-491

[43] Central Coast Regional Water Quality Control Board, 2013. Total Maximum Daily Load for Diazinon and Additive Toxicity with Chlorpyrifos in Arroyo Paredon Watershed in Santa Barbara County, California. Final Project Report. For the March 14-15, 2013 Water Board Meeting. https://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/docs/arroyo_paredon/1arroyo_diaz_tmdl_att2_projrpt.pdf at p. 23. Footnote 2 to Table C.3-1 acknowledges this frequency but does not specify how it was considered in deriving the numeric limits or the prohibition on exceedances of these limits.

BN-490, cont'd

sources. Thus, the Draft WDRs effectively eliminate the frequency, magnitude, and duration elements of the TMDL targets.

BN-492

In addition, the Draft WDRs take from the chlorpyrifos and diazinon TMDLs the requirement that toxicity from chlorpyrifos and diazinon in the receiving water be less than 1.0 TU. The underlying TMDLs specify that this requirement is applicable to the "sum of toxicity" due to diazinon and chlorpyrifos for both acute and chronic exposures, expressed as: [44]

For additive toxicity of diazinon and chlorpyrifos when both are present:

$$S = \leq 1.0 = \frac{C_D}{LC_D} + \frac{C_C}{LC_C}$$

Where:

S = Sum of additive toxicity
$C_D$ = Diazinon concentration in waterbody
$C_C$ = Chlorpyrifos concentration in waterbody
$LC_D$ = Criterion Continuous Concentration (0.10 µg/L) or Criterion Maximum Concentration (0.16 µg/L) diazinon loading capacity.
$LC_C$ = Criterion Continuous Concentration (0.015 µg/L) or Criterion Maximum Concentration (0.025 µg/L) chlorpyrifos loading capacity.

Value of S cannot exceed 1.0 more than once in any consecutive three year period.

This requirement of the Draft WDRs is not required, however, to be evaluated in terms of the exposure duration. Because the CMC is expressed as a 1-hour average, it would be appropriate to compare a grab sample to the CMC in calculating the sum of toxicity. However, it would be inappropriate to compare a grab sample from short-lived flow event (say, for example, a one-day storm event) to the CCC, which is expressed as a four-day exposure, because the exposure does not persist long enough to cause a chronic toxicity response in the test organisms. Thus, the implementation of the TMDL in the

[44] Ibid. at p. 24.

BN-492, cont'd

WDRs fails to require that, for chronic exposures, the constituent concentration be representative over the exposure duration.

BN-493

***Example 4. Numeric limits for constituents in sediment cannot be tied to discharges and should not be used as effluent limitations.***

BN-494

Several numeric limits for sediment are included in the Draft WDRs. For example, the Lower Salinas River Watershed Sediment Toxicity and Pyrethroids in Sediment TMDL is the source of a limit for the constituent "Additive Toxicity (Pyrethroids)" in sediment, with a limit of "Sum of Pyrethroid TU < 1.0."[45] This limit (Sum of Pyrethroid TU < 1.0) is computed using the concentrations of individual pyrethroid pesticides. Because sediment samples collected from a receiving water are likely to contain sediments and pollutants that originated from multiple sources discharged over long periods of time, it will not be possible to conclude if an individual discharger has "caused or contributed" to an exceedance of the toxicity numeric limit for sediment. Given that the Draft WDRs specify that an exceedance may trigger requirements to sample at the ranch-level (since the footnotes to Table C.3-1 specify that only fish tissue limits will be evaluated as receiving water limits), it appears that the Draft WDRs may require the collection of samples to be collected at the ranch level to evaluate compliance with this requirement. However, it is unclear how such a receiving water limit could be evaluated for a "ranch-level discharge" collected upstream of the receiving water.

BN-495

The Lower Salinas River Watershed Sediment Toxicity and Pyrethroids in Sediment TMDL is also the source of a limit for the constituent "Aquatic Toxicity" in the matrix

BN-496

[45] Central Coast Regional Water Quality Control Board, 2017. Total Maximum Daily Loads for Sediment Toxicity and Pyrethroid Pesticides in Sediment in the Lower Salinas River Watershed, Monterey County California. Technical Project Report. Prepared April 2017. https://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/docs/salinas/sed_tox/final_docs/att2.pdf. See also footnote 2 to the Draft WDRs, which specifies that the sum shall be computed in a manner similar to that described in Example 2, where the measured concentration is divided by a reference concentration, and the sum must be less than 1.0.

BN-495, cont'd

"Sediment" with a limit of "No significant toxic effect, 10-day, chronic exposure with *Hyalella azteca*" using the "Survival endpoint." This numeric limit for "Aquatic Toxicity" in sediment is a direct measurement of toxicity over a 10-day exposure period. Because sediment collected from the receiving water will include constituent contributions from multiple upstream sources from long periods of time, it will not be possible to conclude if an individual discharger has "caused or contributed" to an exceedance of the toxicity numeric limit for sediment. Again, it is unclear how such a receiving water limit could be evaluated for a "ranch-level discharge" collected upstream of the receiving water.

BN-497

## 3.2 The Draft WDRs inappropriately assign responsibility for watershed concerns to individual growers, even though those concerns should be addressed holistically on a watershed level.

BN-498

The riparian area management requirements of the Draft WDRs require "planning and management practice implementation such that riparian areas within or bordering the ranch provide and continue to provide the following functions, including … iv. Stabilize streambanks; v. Maintain base flow of streams; … viii. Provide flood conveyance and storage; ix. Provide stormwater detention and purification; … xi. Maintain potable water supplies …"[46] However, these listed functions are typically regarded as watershed functions, and management of these features is typically accomplished on a watershed scale. These requirements are not appropriate expectations for the Draft WDRs.

BN-499

Streambank stabilization is a prime example, as it involves dynamic, natural processes that act over large length scales. Often, the most significant streambank erosion occurs during infrequent, large storm events. Evaluating streambank stability involves analysis of both natural

[46] Draft WDRs at p. 40.

BN-499, cont'd

and anthropogenic factors, and improving streambank stability frequently involves engineered methods that require multiple permits and environmental evaluations—considerations that are well beyond the reasonable expectations of a grower under the Draft WDRs (although they could potentially be undertaken by the CMP; see Section 3.7). For example, as noted by the Resource Conservation District of Monterey County:

> *"Streams are naturally dynamic systems with alternating areas of erosion and deposition. This is problematic for properties and structures that are not managed or built to accommodate a stream's natural tendency to shift its banks within a floodplain. This situation is exacerbated in areas receiving higher than natural runoff from developed lands that tend to produce even more dramatic flood flows and bank erosion … Streambank protection projects are expensive and require state and federal resource agency consultation and permits, so they are typically not advisable unless current or anticipated erosion presents a clear need to prevent loss of land or facilities adjacent to banks; to maintain the flow or storage capacity of the water body; to reduce the offsite or downstream effects of sediment resulting from bank erosion; or to improve or enhance the stream corridor for significant fish and wildlife habitat. Such projects should always be conducted under the direction of a qualified and experienced engineer and in accordance with all applicable local, state, and federal laws and regulations."*[47]

BN-500

Similarly, assessing flood conveyance and storage involves determining expected flow rates for a range of hydrological design conditions (e.g., 10-year, 50-year, 100-year recurrence intervals), evaluating the conveyance capacity of drainage structures and streams to convey those flows, identifying areas of inadequate conveyance or potential flooding, and designing flood protection projects to address deficiencies. Flood control projects and work within streams typically requires extensive permitting and consultation with resource agencies.

[47] https://www.rcdmonterey.org/streambank-protection. Accessed on May 11, 2020.

BN-500, cont'd

While streambank protection and flood control require analyzing high flow events, other provisions of the WDRs would require analysis of low flow conditions. Base flow rates in streams result from the interaction between surface water and groundwaters, reservoir releases, discharges to streams, water resources management (e.g., diversions), and other factors along the entire length of a stream. Requirements to maintain base flows may conflict with the State's water conservation goals. These analyses are complex and require work beyond the implementation requirements typical of NPDES permits or WDRs. Similarly, maintaining potable supplies would require a holistic analysis that is beyond the scope of a grower implementing WDRs.

BN-501

The Draft WDRs also include numeric limits for sediment that are derived from the Morro Bay Sediment TMDL and the Pajaro River Watershed Sediment TMDL. These limits are expressed as a range of watershed sediment loads – i.e., 285-6,662 tons of sediment per year for Morro Bay, and 447-4,114 tons of sediment per year for the Pajaro River Watershed[48] – and dischargers are required to develop and implement a Sediment and Erosion Management Plan (SEMP) that includes "planning and management practice implementation that results in the compliance" with these limits.[49] Footnote 1 to Table C.4-1 specifies that "The limits for those TMDLs are summarized in this table as ranges; however, the exact load allocation values for each reach apply as described in the TMDL and Basin Plan and will be assessed as numeric limits for the purposes of this Order."[50] However, consistent with the discussion above, sediment loads from a watershed are a function of discharges from land along the watershed, streambed erosion, storm event size and intensity, and a number of other complex factors. It is unreasonable to expect growers to analyze these factors, or for implementation measures that could be implemented by individual growers to achieve the goals of the TMDLs for the watershed as a whole.

[48] Draft WDRs at p. 76.
[49] Draft WDRs at p. 37.
[50] Draft WDRs at p. 76.

BN-502

## 3.3 Management practices can and do improve water quality, but it is infeasible to meet the numeric limits of the Draft WDRs at the edge of field under all conditions.

BN-503

Many studies have demonstrated that management practices are effective in improving the water quality of agricultural discharges. Even though the selection and performance of management measures will depend on a wide range of site-specific factors, such as crop type, annual rainfall volume and intensity, and local topography, among others, agricultural studies have been conducted in California that demonstrate the efficacy of various BMPs. For example, for annual crops, crop rotation and rotating shallow rooted crops with more deeply rooted crops facilitates nutrient (nitrate) removal from soils.[51] Grading and vegetating drainage ditches has been shown to reduce the transport of organophosphate and pyrethroid based pesticides. [52] Grassed waterways typically reduce runoff more than non-grassed waterways.[53] While many factors influence the efficacy of erosion control measures such as vegetated buffers (e.g., antecedent rainfall and rainfall intensity, saturation of the soil in the vegetated buffers, height of vegetation), buffers can result in significant sediment removal efficiencies.[54] However, most studies typically report "removal efficiency" and do not provide information that demonstrates that post-BMP constituent concentrations below specified limits can be achieved under all conditions.

BN-504

Even though the literature indicates the general effectiveness of management practices, few resources are available that provide specific guidance on management practice implementation,

[51] Wyland L J., L. E. Jackson, W. E. Chaney, K. Klonsky, S. T. Koike, B. Kimple. 1996. Winter cover crops in a vegetable cropping system: impacts on nitrate leaching, soil water, crop yield, pests and management costs. Agriculture, Ecosystems and Environment. 59:1-17.

[52] Moore, M. T., D. L. Denton, C. M. Cooper, J. Wrysinski, J. L. Miller, K. Reece, D. Crane, and P. Robins. 2008. Mitigation assessment of vegetated drainage ditches for collecting irrigation runoff in California. J Environ Qual 37(2):486-493.

[53] Feiner, P. and Auerswald, K. 2003. Effectiveness of grassed waterways in reducing runoff and sediment delivery from agricultural watersheds. J. Environ. Qual. 32:927–936.

[54] Liu, X., X. Zhang, and M. Zhang. 2008. Major factors influencing the efficacy of vegetated buffers on sediment trapping: a review and analysis. J Environ Qual 37(5):1667-1674.

BN-504, cont'd

that support the selection of management practices that will meet numeric limits, or that connect directly the performance of management practices at the farm level to receiving water quality. Perhaps one of the best resources is the Agricultural BMP Database,[55] a companion of the International Stormwater Database. The Agricultural BMP Database is intended "to develop a centralized repository of agricultural BMP performance studies to provide scientifically based information on practices that reduce pollutant loading from agricultural sites" and was developed with the goal of providing "agricultural advisors, planners, consultants, and producers with information that enables them to better select systems of BMPs for their operations and to support improvements in agricultural BMP design and implementation."[56]

BN-505

As with the literature cited above, the study report for the Agricultural BMP Database concluded that "agricultural BMPs can provide significant reductions in pollutant loading" and found that nutrient management practices can reduce surface runoff and subsurface nutrient loading.[57] However, the study report also concluded that it is highly challenging to draw conclusions about the effectiveness of individual BMPs,

> "*Based on data analysis provided in this summary report, the challenges of effectively analyzing agricultural research data are evident due to the number of variables that combine to determine pollutant loading and BMP performance at a given site. Examples of these variables include study-specific conditions such as soil, slope, climate, and weather conditions (e.g., wet year, drought), cultivation and drainage practices, edge of*

[55] http://www.bmpdatabase.org/agBMP.html. The Agricultural BMP Database is the result of a collaborative effort between the Water Research Foundation, the National Corn Growers Association (NGCA), and the United Soybean Board (USB).

[56] Water Environment & Reuse Foundation (WERF), 2017. Agricultural Best Management Practices Database (AgBMPDB). Version 2.0 Data Summary. 2017. At p. ES-1.

[57] Water Environment & Reuse Foundation (WERF), 2017. Agricultural Best Management Practices Database (AgBMPDB). Version 2.0 Data Summary. 2017. At p. ES-1.

BN-505, cont'd

*field practices implemented, in-field erosion control practices (e.g., grassed waterways, terraces), crop yield goals, and others*."[58]

BN-506

The report noted that it is not possible to predict 'one-size-fits-all' BMP effectiveness or to predict edge of field water quality, and that BMP performance is likely to be highly site-specific:

"*Even limited initial data analysis provided in this report demonstrate that a 'one size fits all' solution to agricultural water quality challenges is not realistic; therefore, a more systematic and standardized reporting and access to study metadata can support decision making regarding which solutions have demonstrated performance, given various site and production characteristics*."[59]

"*Because commonly used percent removal metrics for BMP performance do not provide reliable information on the edge of field concentrations and loads that are being achieved on farms, the AgBMPDB can be used to further refine expectations for practically achievable water quality goals. For example, a 60% sediment removal estimate for buffers is expected to be affected by the initial (baseline) conditions. If a field has high sediment loads as a baseline, then 60% removal may be achievable. Conversely, if a producer has already implemented significant in-field BMPs and has a lower initial baseline, then a 60% removal rate may not be realistic."*[60]

BN-507

Data from the Agricultural BMP Database confirm high variability in constituent concentrations and loadings for nutrients. For example, average annual reported concentrations of nitrate in

[58] Water Environment & Reuse Foundation (WERF), 2017. Agricultural Best Management Practices Database (AgBMPDB). Version 2.0 Data Summary. 2017. At p. 5-1.

[59] Water Environment & Reuse Foundation (WERF), 2017. Agricultural Best Management Practices Database (AgBMPDB). Version 2.0 Data Summary. 2017. At p. ES-1.

[60] Water Environment & Reuse Foundation (WERF), 2017. Agricultural Best Management Practices Database (AgBMPDB). Version 2.0 Data Summary. 2017. At p. ES-2.

BN-507, cont'd

surface runoff ranged widely,[61] but because of the range of crops, cultivation practices, and BMPs, as well as site-specific factors, it is not possible to conclude that any individual BMP (or combination of BMPs) will result in meeting numeric limits at edge of field. Further, although the database is capable of accepting event-based data (e.g., data from individual storm events), to date it has focused on annual or seasonal loads and average concentrations and is comprised of a limited number of study sites and data points. As such, the data in the data base "do not capture important temporal variations that may be useful for understanding pollutant transport dynamics and improving agricultural BMP practices."[62] Similarly, the data do not provide information that can be used to understand the impact of farm-level management practices on water quality in downstream receiving waters.

BN-508

The Agricultural BMP Database also identifies future data needs, including "more consistent reporting of soil characteristics and soil test results" to allow "analysis of soil-related influences on surface and subsurface loadings"; additional information on crop yield "to explore relationships between crop yield, fertilizer, and implemented practices on surface runoff and subsurface drainage water quality"; and additional information related to nutrient management, as "the analysis did not attempt to differentiate among nutrient focus or other parameters such as timing, application method, rate, or frequency due to the lack of sufficient metadata."[63]

BN-509

Most of the data included in the Agricultural BMP Database were gathered for corn and soybeans, crops that are not commonly grown in the central coast region of California. Studies of management practices that are directly applicable to agriculture in California's central coast are rare. In California, studies have focused on crops such as stone fruits and citrus,[64] but

[61] Water Environment & Reuse Foundation (WERF), 2017. Agricultural Best Management Practices Database (AgBMPDB). Version 2.0 Data Summary. 2017. At p. 4-4.

[62] Water Environment & Reuse Foundation (WERF), 2017. Agricultural Best Management Practices Database (AgBMPDB). Version 2.0 Data Summary. 2017. At p. 4-19.

[63] Water Environment & Reuse Foundation (WERF), 2017. Agricultural Best Management Practices Database (AgBMPDB). Version 2.0 Data Summary. 2017. At p. 4-19.

[64] Abbas, F., and A. Fares. 2009. Best management practices in citrus production. Tree and Forestry Science and Biotechnology.

BN-509, cont'd

limited information is available for other crops. Intensive BMP studies have been performed on small farms in California,[65] but these cannot be extrapolated to ranches of any size or to any type of crop. Modeling studies have found that the most effective management practices vary depending on a given crop type, hydrologic soil group, and application method of fertilizers or pesticides,[66] making each ranch a unique case depending on these and other factors. Taken together, the available case studies of farms and ranches in California highlight the unpredictability of pollutant runoff and the variability that has been measured dependent on crop type, management practice, rainfall, and other factors.

BN-510

Regarding the numeric limits of the Draft WDRs, the Draft WDRs assert that

> "*Although the RB is precluded from specifying the manner of compliance with waste discharge limitations, in appropriate cases, limitations may be set at a level which, in practice, requires implementation of Best Management Practices… This Order's numeric application, discharge, and receiving water limits and setback requirements will, in practice, require implementation of management practices protective of water quality. Consistent with Water Code section 13360, this Order does not specify the specific management practices that must be implemented; dischargers may choose the manner of compliance provided the practices implemented achieve the applicable limits.*"[67]

Christian-Smith, J., L. Allen, M. J. Cohen, P. Chulte, C. Smith, and P. H. Glieck. 2010. California farm water success stories. Pacific Institute. Oakland, California. 74 pp

Epstein, L., S. Bassein, F. G. Zalom, and L. R. Willhoit. 2001. Changes in pest management practice in almond orchards during the rainy season in California, USA. Agriculture, Ecosystems & Environment 83:111-120.

[65] Smukler, S. M., A. T. O'Geen, and L. E. Jackson. 2012. Assessment of best management practices for nutrient cycling: A case study on an organic farm in a Mediterranean-type climate. Journal of Soil and Water Conservation 67(1):16-31.

[66] Reckhow, K. H., S. S. Qian, and R. D. Harmel. 2009. A multilevel model of the impact of farm-level best management practices on phosphorus runoff. J of Water Res Assn 45(2):369-377.

[67] Draft WDRs Attachment A at p. 32.

BN-510, cont'd

However, as noted above, little research or data are available that would assist ranchers in determining which management practices should be implemented to meet numeric limits at edge of field. The Regional Board did not examine which management practices would be suitable for meeting the numeric limits of the Draft WDRs, or even if management practices exist that would allow the numeric limits to be met consistently. The Draft WDRs, by requiring strict compliance with numeric limits, go far beyond the regulatory approaches that are typically used to regulate agricultural discharges or water quality from nonpoint sources – and far beyond the available data and information that would support such an approach.

BN-511

As shown in the Agricultural BMP Database, agricultural runoff water quality is a highly complex function of many factors, including site-specific factors (e.g., soil type, slope), climatic factors (e.g., wet v. dry conditions, intensity of rain events), agricultural practices (e.g., crop type, crop rotation, fertilizer application rates and methods), and more. Although it is well established that agricultural management practices can and do improve water quality, the state of the science is currently such that implementation is iterative in nature, and a high degree of variability in both influent and effluent quality is expected. There is no evidence that available management practices will result in water quality below the numeric limits of the Draft WDRs at the edge of field under all conditions and in all circumstances, and no evidence that doing so is necessary to meet water quality objectives in the receiving water.

BN-512

In analyses of storm flow discharges (which, like agricultural discharges, are highly variable and are typically treated with BMPs), studies indicate that storm water can be treated to consistently meet numeric limits only in highly prescribed circumstances – for example, implementation of advanced treatment systems with chemical addition will generally reduce sediment concentrations and turbidity in runoff from construction sites to meet numeric limits.[68] These highly engineered systems are not generally suitable for runoff from agricultural lands.

[68] Currier, B., G. Minton, R. Pitt, L.A. Roesner, K. Schiff, M. Stenstrom, E. Strassler, and E. Strecker, 2006. The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal,

BN-513

For all these reasons, compliance with the numeric limits of the Draft WDRs at the edge of the field is infeasible. Use of an alternative approach, such as the potential alternative described by the SWRCB as allowing "good faith engagement in the iterative process to constitute" compliance with receiving water limitations,[69] is consistent with the current state of the science and consistent with the CMP proposal described in Section 3.7.

BN-514

## 3.4 The Riparian Area Management Plan (RAMP) requirements are unlikely to achieve the Regional Board's stated objectives.

BN-515

Attachment A to the Draft WDRs states that "Riparian areas play an important role in achieving numerous water quality objectives established in the Basin Plan to protect specific beneficial uses. These include water quality objectives related to natural receiving water temperature, dissolved oxygen levels, suspended sediment load, settleable material concentrations, chemical constituents, and turbidity."[70] The Draft WDRs require growers to develop Riparian Area Management Plans (RAMPs), which require

> "*Planning and management practice implementation such that riparian areas within or bordering the ranch provide and continue to provide the following functions, based on the waterbody's beneficial use designations in the Basin Plan.*
>
> *i. Maintain the physical, chemical, and biological integrity of water resources;*
> *ii. Treat polluted surface and subsurface waters through filtration, sequestration, biological degradation and chemical oxidation;*
> *iii. Prevent additional nonpoint source pollution of waters by providing buffers;*
> *iv. Stabilize streambanks;*
> *v. Maintain base flow of streams;*

Industrial, and Construction Activities. Storm Water Panel Recommendations to the California State Water Resources Control Board. June 19, 2006. At p. 15.

[69] See SWRCB WQO 2015-0075 at p. 14.

[70] Appendix A to the Draft WDRs at p. 176.

BN-515, cont'd

vi. *Contribute organic matter that is a source of food and energy for biota and the aquatic ecosystem;*

vii. *Provide tree canopy to shade streams and moderate water temperature;*

viii. *Provide flood conveyance and storage;*

ix. *Provide stormwater detention and purification;*

x. *Provide wildlife habitat;*

xi. *Maintain potable water supplies;*

xii. *Maintain benthic organisms, fish and other aquatic life."*[71]

BN-516

Growers with waterbodies within or bordering their ranch are required to implement operational setbacks as specified in the Draft WDRs, or, alternatively, to demonstrate compliance using one of four pathways:

1. Cooperative Approach – The formation or identification of a third-party organization to develop a Cooperative Watershed Restoration Plan (CWRP). The CWRP must "identify and implement projects that result in riparian establishment, re-establishment, and/or enhancement projects that benefit water quality objectives for sediment, toxicity, nutrients, and temperature, and are protective of all beneficial uses for inland surface waters, enclosed bays, and estuaries…"[72]

2. On-Farm Setback – Establishment or retention of an existing riparian setback based on the Strahler Stream Order method (or alternative method) to achieve the minimum riparian and/or wetland setback distances and requirements specified in the Draft WDRs.

3. Rapid Assessment Method – Assessment using the Riparian Rapid Assessment Method (RipRAM) to achieve a specified reference score.

[71] Draft WDRs at p. 40.

[72] Draft WDRs at p. 43.

BN-516, cont'd

4. Alternative Proposal – Dischargers must submit an Alternative Proposal for review by the Executive Officer.

BN-517

Exponent has not commented on the Cooperative Approach as described in the Draft WDRs, as the details would be determined by the third-party organization in concert with growers. Similarly, we cannot develop comments on the Alternative Proposal concept, as the details are undetermined. Although the Draft WDRs specify that the "Alternative Proposal must quantitatively demonstrate that the proposed alternative does not cause or contribute to the exceedance of any water quality objectives in the receiving water… [or to] any degradation of receiving water quality … and protects all beneficial uses,"[73] the Draft WDRs and accompanying documents do not specify how (or even if) these demonstrations could be made.

BN-518

Exponent's analysis has focused on the basis for the setback and RipRAM methods of demonstrating compliance, as described below.

BN-519

### 3.4.1 Setback requirements specified in the order are based on unrelated and often inapplicable studies, and there is little evidence they will aid in achieving numeric limits.

BN-520

The Draft WDRs specify two types of setback requirements for Dischargers with waterbodies within or bordering their ranch: "riparian" and "operational" setbacks, depending on ranch proximity to priority areas.[74] The riparian setback applies to ranches located in Riparian Priority areas with a surface water body on or bordering the ranch, while the operational setback applies to ranches outside of Riparian Priority areas and ranches in Riparian Priority Areas that select the Cooperative Approach or Alternative Approach compliance pathway.[75]

[73] Draft WDRs at p. 45.

[74] Draft WDRs at p. 41.

BN-521

[75] Attachment A to Draft WDRs at p. 183. Note also that the Draft WDRs at p. 41 indicate that "Dischargers with ranches in Riparian Priority areas who select the Rapid Assessment Method compliance pathway and achieve the reference site score at their ranch are considered to be in compliance with the operational setback requirement."

BN-522

However, it is unclear how the setback criteria were formulated. For example, at least 18 studies are cited for providing guidance on setbacks based on terrestrial and avian wildlife protection. These studies span more than 5 decades, appear unrelated to one another, and are based in large part on species and habitats that are not relevant to California. For example, Table A.C.5-6 (Attachment A to the Draft WDRs) is at least in part "adapted from Vermont Agency of Natural Resources, 2005," which includes a broad literature review but which focuses on conditions and species present in Vermont. It has not been established that setback strategies suitable for Vermont are applicable to the California Central Coast. Additional tables in Attachment A cite to multiple references providing setback requirements based on ecosystem function, setback requirements adopted by municipalities in California, California Forest Practice Rules, and nation-wide policies (e.g., Kansas, Florida, Idaho, Vermont). Setbacks reported from these studies range from ~5-645 feet. Although the Draft WDRs state that "the riparian setback width requirements established in this Order are based on peer-reviewed scientific/technical literature and regulatory approaches or policies at the local, regional, state, and nation-wide level…"[76] it is not clear that these studies are specifically applicable to agricultural land uses in the central coast region, or how the setback criteria were calculated from the assortment of studies cited in Appendix A to the Draft WDRs. Also, the Regional Board stated that riparian setback width requirements were "validated through an analysis of RipRAM and pHAB scores that represent high water quality riparian and wetland areas in agricultural areas of the central coast…,"[77] and yet no analysis (or reference to this analysis) was provided.

BN-523

Perhaps most importantly, no information or guidance is provided that specifies how setbacks will achieve water quality objectives, or how they will meet different beneficial uses in specific water bodies. Appendix A to the Draft WDRs notes that,

> "*Setbacks are an effective riparian management measure to protect water quality and beneficial uses. The size of a setback and approaches to assessing riparian setback*

[76] Attachment A to the Draft WDRs at p. 205.

[77] Attachment A to the Draft WDRs at p. 205.

BN-523, cont'd

*widths depend on which water quality objective needs to be met and/or which beneficial use needs protection. For example, the setback width needed to effectively remove sediments is different from the width needed to effectively remove nutrients. Setback widths to protect terrestrial wildlife are wider than those needed for sediment or nutrient removal. Setback widths to effectively remove pesticides vary greatly depending on pesticide type.*"[78]

BN-524

However, the Regional Board has provided no assessment of the setback criteria required for different water quality constituents regulated by the Draft WDRs, nor evidence that implementing setbacks will result in attainment of the numeric limits of the Draft WDRs or under which conditions. The chosen setback criteria appear to be arbitrary, and guidance is not given for how site-specific parameters (e.g., soil type, cropping systems, stream size) will influence the efficacy of setbacks.

BN-525

Finally, Attachment A to the Draft WDRs notes that management measures for riparian setback areas are defined under the Coastal Zone Act Reauthorization Amendments (CZARA) as "economically achievable measures to control the addition of pollutants to our coastal waters, which reflect the greatest degree of pollutant reduction achievable through the application of best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods, or other alternatives." Neither the Draft WDRs nor the accompanying documents assess whether the setback requirements are economically achievable.

BN-526

### 3.4.2 The RipRAM tool should not be used as a regulatory requirement.

The RipRAM method was developed by the Central Coast Wetlands Group[79] to assess riparian stream health for a variety of different types of waterbodies, and to evaluate ecological

[78] Appendix A to the Draft WDRs at p. 186.

[79] Central Coast Wetlands Group. Development of New Tools to Assess Riparian Extent and Conditions – A Central Coast Pilot Study. Final Report. US EPA Wetlands Program Development Grant CD-00T83101. January 17, 2017.

BN-526, cont'd

conditions at both small and large spatial scales. The RipRAM ecological assessment is performed by matching observed field conditions to narrative descriptions for eight metrics of riparian condition as outlined in the RipRAM methodology: total riparian cover; vegetation cover structure; vegetation cover quality; age, diversity and natural regeneration; riparian vegetation width; riparian soil conditions and permeability; macroinvertebrate habitat patch richness; and anthropogenic alteration to channel morphology. RipRAM narrative descriptions rank from "worst" (i.e., poor ecosystem health) to "best" (i.e., good ecosystem health). An overall score is then developed based on these eight metrics.

BN-527

While the RipRAM methodology has utility as an assessment measure for rapid screening of a resource, its use in a regulatory context as proposed in the Draft WDRs appears to suffer from several shortcomings. First, the method requires two or more trained individuals working together to achieve a composite score. However, the Draft WDRs do not specify necessary qualifications or provide further information on training required for individuals to perform the RipRAM assessment, and it appears the methodology is still under development.[80]

BN-528

Second, subjective assessment tools are often prone to an individual's normative bias. "One of the principal concerns with visual-based assessments is that qualitative measures or categorizations of habitat types can invite observer bias, and thus adversely affect repeatability and objectivity (Roper and Scarnecchia, 1995; Poole et al, 1997)."[81] One strategy to address this

BN-529

[80] It appears that the qualifications or training required to implement the RipRAM method are not publicly available, as the Central Coast Wetlands Group's webpage said until recently that this aspect was under development. Currently the webpage indicates that the group can be contacted regarding scheduling a training class. See https://www.mlml.calstate.edu/ccwg/ripram-training/.

[81] *Somerville, D.E. and B.A. Pruitt. 2004. Physical Stream Assessment: A Review of Selected Protocols for Use in the Clean Water Act Section 404 Program. September 2004, Prepared for the U.S. Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds, Wetlands Division (Order No. 3W-0503- NATX). Washington, D.C. 213 pp. Document No. EPA 843-S-12-002. https://www.epa.gov/sites/production/files/2015-08/documents/physical_stream_assessment_0.pdf.* With citations to:

Roper, B.B., and D.L. Scarnecchia. 1995. Observer variability in classifying habitat types in stream surveys. North American Journal of Fisheries Management 15:49-53.

Poole, G.C., C.A. Frissell, and S.C. Ralph. 1997. In-stream habitat unit classification: Inadequacies for monitoring and some consequences for management. Journal of the American Water Resources Association 33(4): 879-896.

BN-528, cont'd

issue would be to require a separate, second assessment by a different qualified individual and determine whether the independent scores differ. We did not identify information in either Attachment A to the Draft WDRs or in the RipRAM materials as to the potential bias that may exist for scoring, and under what conditions bias exists or may be exacerbated (field method validation). In addition, within the method component and scoring system, many specific aspects of a single metric are scored and are therefore dependent on one another.[82] This interdependency limits the predictive power of each individual metric used for assessment, in terms of their ability to independently determine riparian health.

BN-530

Third, the appropriate use of an assessment tool like RipRAM requires comparison with reference sites that are deemed ecologically "healthy." The Draft WDRs require that an index score of 69 or higher be achieved, as that score is the "median score for all the Ag Reference sites" "with high quality riparian areas," and which "can be considered an intact riparian corridor of good quality in an agricultural land use area."[83] However, by definition, half of the reference sites with high quality riparian areas scored below the median value of 69. Although the staff report does not describe the strategy for the selection of reference sites, the fact that half of the sites with "high quality riparian areas" had scores below 69 indicates that using the median reference score as a regulatory threshold is not a reasonable expectation, since half of the reference sites themselves do not meet this score. In addition, the scoring assessment criteria used in the Draft WDRs are inconsistent with the score interpretation intended by the developers of the method, who defined the RipRAM scores as follows:

BN-531

[82] For example, Metric 1 (Total riparian cover), Metric 2 (Vegetation cover structure), Metric 3 (Vegetation cover quality), and Metric 4 (Age diversity and natural regeneration of woody species) assess various aspects of the vegetative structure within the riparian corridor. However, these metrics are interrelated and a score in one of the metric categories influences the score in the other three metrics.

[83] Appendix A to the Draft WDRs at p. 217.

BN-530, cont'd

< 20, very poor

>21 and <40, poor

> 41 and < 60, fair

>61 and <80, good

>81 and <100, excellent.[84]

This inconsistency suggests that specific regulatory use proposed in the Draft WDRs is based on a scoring criterion (i.e., a requirement to score at least a 69) that is more refined and specific than the RipRAM methodology upon which it is based. It is incorrect to use a more granular scoring method than intended, because it is known that methodologies such as the RipRAM method are subject to sampling precision issues. For example, Kaufmann et al. (1999)[85] found that USEPA Rapid Bioassessment (RBP) habitat metrics were unable to precisely measure the habitat quality of re-sampled streams with larger regions. Variability in RBP scores measured multiple times at the same stream was as large as variability in RBP scores measured across different streams, indicating that a single measure of RBP is not a reliable indicator of habitat quality in a particular stream.

BN-532

In addition, the staff report does not explain how the various RipRAM scores (and associated required score of 69) provide sufficient habitat quality information to assess the overall benefits to feeding, nesting, cover and breeding habitat for birds, fishes, amphibians, reptiles, and mammals.

[84] Central Coast Wetlands Group. Development of New Tools to Assess Riparian Extent and Conditions – A Central Coast Pilot Study. Final Report. US EPA Wetlands Program Development Grant CD-00T83101. January 17, 2017.

[85] Kaufmann, P.R., P. Levine, E.G. Robison, C. Seeliger, and D.V. Peck. 1999.Quantifying Physical Habitat in Streams. USEPA, EPA/620/R-99/003, Washington,

BN-533

Therefore, it may be difficult to fully implement the RipRAM technique as intended. A full and complete assessment requires access to the full stream corridor being assessed, but individual land owners may not have the ability to assess adjacent lands and will likely not have the ability to provide sufficient improvements in habitat areas not adjacent to their property. (Pilot assessments conducted from a bridge versus visiting the complete riparian corridor indicated that bridge assessments consistently received lower scores than inside the riparian area.[86]) Another constraint is that the assessment compares current riparian habitat to the FEMA 100-year floodplain. This portion of the assessment relies on the FEMA flood maps, which may not always be accurate at the scale needed, or that may not be available for a given stream segment.

BN-534

As with setback requirements, Attachment A to the Draft WDRs also does not link the overall RipRAM scores to meeting water quality objectives for temperature, dissolved oxygen, suspended solids load, settleable material concentrations, chemical constituents, or turbidity.

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Based on review of the order, staff report, and Central Coast Wetlands Group's report on the RipRAM method development and the literature on the benefits and drawbacks of rapid habitat scores, the RipRAM method is not suitable for use as a regulatory compliance tool at this time. Considerable additional work, such as peer method validation other than by the developers themselves, assessment of potential biases, and overall training of practitioners, needs to be available prior to the use as a regulatory requirement. Furthermore, additional work is needed to explain and justify the selection of reference sites for the region, the appropriateness of the minimum score of 69 for the RipRAM assessment, and the linkage between this score and meeting the appropriate water quality objectives and numeric limits.

[86] Central Coast Wetlands Group. Development of New Tools to Assess Riparian Extent and Conditions – A Central Coast Pilot Study. Final Report. US EPA Wetlands Program Development Grant CD-00T83101. January 17, 2017, p 49-50.

BN-536

## 3.5 The Irrigation and Nutrient Management Plan (INMP) mass balance approach for regulating discharges of nitrate is overly simplistic, will not accurately describe nutrient discharge on a ranch scale, and is likely infeasible to achieve.

BN-537

The Draft WDRs require that dischargers "must develop and implement an Irrigation and Nutrient Management Plan (INMP) that addresses both groundwater and surface water"; the INMP must include "[p]lanning and management practice implementation and assessment that results in compliance with the fertilizer nitrogen application limits..."[87] The proposed limits are expressed in terms of a maximum application rate for specific crops,[88] as well as a nitrogen discharge target and limit.[89,90]

BN-538

The nitrogen discharge target and limit are intended to quantify "excess" nitrogen applied to an agricultural system. Two formulae are included in the Draft WDRs to quantify this "excess nitrogen."[91] In the first formula, nitrogen discharge per acre is calculated as the difference between applied nitrogen and removed nitrogen. Applied nitrogen is defined as *nitrogen fertilizer applied per acre* plus *the total quantity of nitrogen applied as compost* (adjusted by a "compost discount factor" to account for the amount of nitrogen mineralized [released] during the year) plus the quantity of *nitrogen applied per acre within irrigation water*. Removed nitrogen is defined as the *quantity of nitrogen removed from the agricultural system* (per acre) by crop harvesting, treatment, sequestration (in soils), and "other" means. The second formula

[87] Draft WDRs at p. 24.

[88] Draft WDRs at p. 24 and Table C.1-1.

[89] Draft WDRs at pp. 24-25 and Table C.1-2.

BN-539

[90] The Draft WDRs state, "At a minimum, the elements of the INMP related to surface water protection must include: a. Monitoring and recordkeeping necessary to submit complete and accurate reports, including the ACF, TNA report, and INMP Summary report." (Draft WDRs at p. 30) The Draft Monitoring and Reporting Plan states that the INMP summary report is "used to determine compliance with the nitrogen discharge targets and limits established in the Order via the two available compliance pathways [mass balance calculations]." (Attachment B to the Draft WDRs at p. 10) However, it appears that the compliance pathways were developed specifically for determining whether excess nitrogen is discharged to groundwater, not surface water. It is unclear whether the Regional Board contemplates that the compliance pathways (mass balance calculations) shall be used to determine nitrogen discharges to surface waters.

[91] Draft WDRs at p. 25.

BN-538, cont'd

requires that the amount of nitrogen added to the agricultural system through fertilization and compost must not exceed nitrogen removal. These formulae are elements of the INMP summary report[92] that are required for groundwater[93] and surface water protection.[94]

BN-540

In either case, these computations are overly simplistic. Nitrogen loss from agricultural systems is controlled by many factors,[95] including the chemical form of nitrogen fertilizer applied, the timing and extent of fertilization relative to irrigation and precipitation events, and the (soil) depth of fertilizer application. The mineralization rates of compost and natural organic matter depend on environmental factors such as temperature, soil moisture, and the variable composition of compost, and nitrogen may be lost to chemical transformations (e.g., nitrification, denitrification, mineralization of natural organic matter [non compost]). Site-specific factors also affect nitrogen cycling, including soil type and antecedent soil moisture, irrigation frequency, and the frequency and duration of precipitation events.[96]

BN-541

Moreover, the mass balance approach does not account for the timing and placement of fertilizer and irrigation needed for successful crop growth. For example, soil crusting, which may impair the germination and emergence of some plants, may be mitigated through increased application of water.[97] If the amount of nitrogen present in irrigation water is insufficient to sustain proper growth, or if other irrigation water parameters affect the availability of nitrogen in irrigation water, fertilizer may need to be applied. Hence, the application of irrigation water and fertilizer must be adjusted to account for numerous factors that vary over the growing season. The

[92] Attachment B to the Draft WDRs at p. 10.

[93] Draft WDRs at p. 25.

[94] Draft WDRs at p. 30.

[95] Mesinger, J.J. and J.A. Delgado. 2002. Principles for Managing Nitrogen Leaching. Journal of Soil and Water Conservation. 57 (6). 485-498.

[96] Delgado, J.A., Khosla, R., Bausch, W.C., Westfall, D.G. and D.J. Inman. 2005. Nitrogen Fertilizer Management based on Site-Specific Management Zones Reduces Potential for Nitrate Leaching. Journal of Soil and Water Conservation. 60 (6). 402-410.

[97] USDA Fact Sheet. Soil Quality Indicators: Soil Crusts. https://www.nrcs.usda.gov/wps/PA_NRCSConsumption/download?cid=nrcs142p2_051277&ext=pdf. Last accessed 6/17/2020.

BN-541, cont'd

formulae used in the Draft WDRs do not capture these complex and site-specific physical, biological, and chemical processes that will control the quantities of nitrate discharged from a ranch.

BN-542

Although the mass balance approach has been suggested as a means to estimate nitrogen inputs to groundwater, it is unclear whether this approach can be used to estimate nitrogen runoff to surface waters. For example, Harter et al. (2012)[98] discussed mass balance calculations for estimating nitrogen inputs from agricultural systems to groundwater but did not appear to evaluate the use of mass balance calculations to estimate nitrogen in discharges surface waters. It is therefore unclear why the Draft WDR uses mass balance analyses as a compliance tool for nitrate discharge to both groundwater and surface waters.

BN-543

Because the Draft WDRs do not account for these complex factors, calculated discharge nitrate concentrations will be different than actual discharge concentrations and will not accurately reflect the actual quantities of nitrogen within runoff. Indeed, nitrogen concentrations in central coast watershed flows, including those affected by agricultural runoff, are highly variable.[99] Hence, it is too simplistic to use a mass balance approach as the basis for a "one-size fits all" ***compliance*** mechanism relating to surface waters. Instead, if applied carefully and thoughtfully on a per-site (ranch) basis, mass balance calculations may be helpful for ***informing*** specific management decisions and implementing BMPs for limiting nitrogen runoff into receiving waters, particularly in priority watersheds, but these calculations should not be used to assess compliance with the requirements of the Draft WDRs.

[98] Harter, T, and J. R. Lund. 2012. Addressing Nitrate in California's Drinking Water: Executive Summary. University of California, Davis Center for Watershed Sciences.

[99] Goodridge, B.M. and J.M. Melak, 2012. Land use control of stream nitrate concentrations in mountainous coastal California watersheds. Journal of Geophysical Research. 117, G02004.

BN-544

## 3.6 Monitoring at the ranch or field level will not provide the data and information needed to advance the regulatory program for irrigated lands.

### 3.6.1 General considerations related to the design of a monitoring and reporting program for runoff from irrigated agriculture

BN-545

Because it is not possible to conduct surface water monitoring at all places and all times, monitoring programs are designed to "sample" receiving waters. A well-constructed monitoring program will allow for the assessment of a system using observations at select, representative locations and points in time and to detect trends over time. A monitoring plan is developed to describe how monitoring will be conducted and how data will be collected, handled, and interpreted. An effective monitoring program must determine the appropriate sample size, sample frequency, sample locations, and sample analyses. These determinations are best accomplished when the monitoring program is designed to address specific objectives. Although on the limitations faced in determining an appropriate number of samples to represent a system is available,[100] the unique characteristics of each watershed and objectives of the regulatory program must be considered. Further, re-purposed data from other monitoring efforts should be used cautiously. In many instances, data collected by separate programs for different purposes will not address these considerations, and therefore will not address the objectives of the regulatory program.

BN-546

Highly variable systems pose unique challenges for monitoring program design. A high amount of variability ("noise") may confound the ability to characterize a system or observe trends over time (i.e., it can be hard to see the signal through the noise). Because variability is greatest at small scales such as the field scale, edge of field monitoring is likely to yield a data set that is ill-suited to determine conditions in receiving waters, the overall effectiveness of management practices, and trends over time. Further, capturing information to characterize the many factors

[100] See, for example, Law et al 2008. Monitoring to Demonstrate Environmental Results: Guidance to Develop Local Stormwater Monitoring Studies Using Six Example Study Designs. Center for Watershed Protection. https://www.epa.gov/sites/production/files/2015-11/documents/monitoring_guidance_full_report.pdf.

BN-546, cont'd

that generate variability at the field scale (e.g., local crop patterns, plant growth stage, irrigation practices, rainfall intensity, fertilizer or chemical application patterns, rainfall intensity, etc.) would require far more monitoring data than can be collected by a monitoring program implemented pursuant to waste discharge requirements. Such a detailed monitoring program would typically be part of a much larger university research program or regulatory study.

BN-547

Under ideal conditions, monitoring and sampling locations should be designed either to monitor a specific area or to best represent the system as a whole. However, a variety of logistical considerations must be taken into account when creating and modifying an environmental monitoring plan. At the field- or small watershed scale, limitations often include climate, physical access, personnel safety, equipment availability, and budget. In some systems, access to sampling locations is limited due to legal and/or physical constraints. In such cases, professional judgment and information on accessibility would be used to determine site locations.

BN-548

Additional considerations include sampling frequency (the number and frequency of samples that must be taken and analyzed to appropriately characterize a system), selection of field sampling and measurement instruments, analytical requirements, and transportation requirements for site access (foot, automobile, boat, helicopter). Monitoring plans may require sampling to characterize dry weather water quality and flow conditions, and storm water monitoring may be conducted during or after significant rain events to measure runoff, turbidity or sediment load, and water quality parameters during storm conditions. Since storm flows are transient, monitoring is typically more difficult and expensive than dry weather monitoring. Weather cannot always be reliably predicted, runoff may occur when field personnel are not ready and available, and access is frequently more challenging during storm conditions. Sampling during storm conditions can pose additional health and safety concerns for field personnel (e.g., washed out roads, high flow, loose debris, poor weather conditions, night-time sampling). However, data from wet conditions are important for characterizing episodic loads to receiving waters, particularly for constituents such as sediment (and sediment-bound pollutants)

BN-548, cont'd

that are mobilized during storm events. The flow chart shown in Figure 2 (U.S. EPA, 2003[101]) depicts some of the decisions that must be considered in formulating a monitoring plan for evaluating nonpoint pollution from agriculture. Figure 2 also illustrates the importance of feedback and adaptive management.


Figure 2. Development of a monitoring project. Excerpted from USEPA (2003).

BN-549

Thus, a comprehensive and representative monitoring plan requires a careful and thoughtful balance between project requirements and logistical considerations. A monitoring program to evaluate surface water quality impacts from agricultural discharges should be designed to:

[101] U.S. EPA. 2003. National Management Measures for the Control of Nonpoint Pollution from Agriculture. U.S. Environmental Protection Agency. EPA 841-B-003-004. July 2003.

BN-549, cont'd

- Strategically identify pollutants and conditions to be monitored to identify water quality concerns arising from irrigated agriculture.
- Determine the concentrations of key pollutants in surface waters, characterize the variability of measured pollutant concentrations, and identify exceedances of water quality objectives in the receiving water.
- Provide data to determine if existing management practices are improving water quality and to identify the need for timely implementation of additional management practices to improve and/or protect water quality.

### 3.6.2 Analysis of the Surface Water Monitoring and Reporting Requirements of the Draft WDRs

BN-550

The Draft WDRs require dischargers to conduct surface water monitoring to achieve the following:

*(a) "Evaluate the impact of irrigated agricultural waste discharges on receiving waters;*

*(b) Evaluate compliance with the numeric limits described in the Order;*

*(c) Evaluate the status of receiving water quality, including whether water quality objectives are attained and beneficial uses are protected;*

*(d) Evaluate short-term patterns and long-term trends (five to ten years or more) in receiving water quality;*

*(e) Evaluate water quality impacts of tile drain discharges from irrigated agricultural operations;*

*(f) Evaluate water quality impacts of stormwater discharges from irrigated agricultural operations;*

*(g) Evaluate the condition of existing perennial, intermittent, and ephemeral streams and riparian and wetland areas, including degradation resulting from erosion or irrigated agricultural discharges of waste;*

(h) *Identify specific sources of water quality problems*."[102]

BN-550, cont'd

Discharges, either individually or as part of a cooperative program, must monitor, at a minimum, flow, water quality (physical parameters, metals, nutrients, pesticides), toxicity (water and sediment), and assessment of benthic invertebrates, physical habitat monitoring, and RipRAM monitoring.[103]

BN-551

The Draft WDRs require that dischargers must monitor "Surface Receiving Water Quality Trends" and "[e]valuate the impact of irrigated agricultural waste discharges on receiving waters."[104] The Monitoring and Reporting Plan of the Draft WDRs also specifies that "the work plan must include a schedule for sampling. Timing, duration, and frequency of monitoring must be based on land use, complexity, hydrology, and size of water body."[105] These are but a few of the many factors that affect constituent concentrations and flows from nonpoint sources, and it has not been established how these factors should be considered in a ranch or field-level monitoring plan design, or what quantity of data would be required to determine the impacts of these factors on constituent concentrations or loads.

BN-552

The Monitoring and Reporting Plan of the Draft WDRs requires growers to perform stormwater monitoring.[106] The Draft MRP states "Stormwater monitoring must be conducted within 18 hours of storm events, preferably including the first flush run-off event…that results in significant increase in storm flow." Performing stormwater sampling is logistically challenging and it may not always be possible to capture the first flush, or even, given variability in forecasts and storm tracks, to determine in advance when a first flush may occur. Stormwater discharges are also highly variable, and the "first flush" of a stormwater event may not contain the highest

[102] Attachment B to the Draft WDRs at pp. 21-22.
[103] Attachment B to the Draft WDRs at pp. 22-23.
[104] Attachment B to the Draft WDRs at pp. 21.
[105] Attachment B to the Draft WDRs at p. 23.
[106] Attachment B to the Draft WDRs at p. 26.

BN-552, cont'd

pollutant loading.[107] (Further, the absence of a first flush phenomenon may make it more challenging to treat pollutant loads from irrigated agriculture; see Section 3.1.) It is unclear if a plan could be designed that would meet the objectives of the Draft WDRs at the level of an individual ranch.

BN-553

The Draft WDRs also state that dischargers must not *cause or contribute* either to an exceedance of the pollutant's receiving water limit or to an increase in the concentration of a pollutant in a receiving water where water quality is better than the applicable limit for a pollutant.[108] Given variability, it may be difficult to establish a baseline level against which to compare future water quality measurements; establishing a baseline should consider the conditions under which the baseline data were obtained (e.g., storm size, antecedent conditions, upstream control measures, etc.), the quantity of data needed to characterize the baseline, and the frequency with which a baseline should be expected to be exceeded.

BN-554

Finally, dischargers in areas that do not achieve an applicable limit "may be required to perform ranch-level surface discharge monitoring and reporting" and must achieve applicable limits by specified compliance dates.[109] Ranch-level surface discharge monitoring and reporting would be conducted for multiple purposes, including to "[a]ssess their contribution to exceedances of applicable surface water quality limits, including concentration and load for all applicable parameters in their discharge; [e]valuate the effects of their discharge on receiving water quality and beneficial uses; and [e]valuate compliance with applicable surface water limits."[110] Dischargers must also develop a "follow up surface receiving water implementation work plan" to identify and abate source of water quality impacts, evaluate the impact of waste discharges on receiving waters, evaluate compliance with the numeric limits, and "identify follow-up actions,

[107] J.A. Pedersen et al. 2006. Organophosphorus Insecticides in Agricultural and Residential Runoff: Field Observations and Implications for Total Maximum Daily Load Development. Environmental Science and Technology. 40, 2120-2127.

[108] Attachment B to the Draft WDRs at pp. 30-31.

[109] Attachment B to the Draft WDRs at p. 31.

[110] Attachment B to the Draft WDRs at p. 28.

BN-554, cont'd

including outreach, education, additional monitoring and reporting, and management practice implementation that will be implemented to achieve compliance with the numeric limits described in the Order."[111]

BN-555

As discussed in Section 3.1, nonpoint discharges exhibit highly variable flow rate and constituent concentrations. Discharges from irrigated lands throughout irrigation season are spatially and temporally diffuse due to unpredictable timing of chemical application, precipitation events, irrigation schedules, and other confounding factors. Variability is greatest at small scales (e.g., at the field level), but mixing and dispersion within receiving waters attenuates this variability and increases reproducibility at the watershed scale. Because of the variability inherent in environmental monitoring and specific to nonpoint sources such as irrigated lands, it is not reasonable to expect monitoring results specific to a single field or ranch to be reproducible in the traditional sense.

BN-556

At a field scale, the high degree of variability and the importance of multiple site-specific factors (e.g., management practices, soil type, rainfall intensity, crop type and plant growth stage, etc.) complicates efforts to evaluate the effectiveness and broad applicability of management practices at the farm level, and to quantify receiving water quality improvements. At the watershed scale, however, lower variability results in measurements that are more generally reproducible and that can therefore be more reliably used to assess long-term trends in water quality and to assess the impact of management practices. Also, many of the goals of the Draft WDRs, such as reduced watershed sediment loads, maintaining streambank stability, and flood conveyance and storage, can only be assessed at a watershed scale (see Section 3.2).

BN-557

For the reasons described in Section 3.6.1, designing a robust monitoring program is logistically and technically challenging, and it is important to define the objectives to be addressed by a monitoring program (e.g., to evaluate whether water quality objectives are achieved in the

[111] Draft WDRs at p. 24-25.

BN-557, cont'd

receiving water, whether additional management practices need to be implemented), and to determine both the sampling strategy and resources required to address those questions.

BN-558

Given the many factors that affect receiving water and discharge water quality and the lack of reproducibility of observed conditions over time, a robust monitoring program would be one that would address specific questions to provide guidance to the regulatory agency and ranchers.

BN-559

## 3.7 The Agriculture WDRs must be data-driven and science-based. The Draft WDRs should be modified to include a watershed-based approach that optimizes the collection of data and information, identifies and addresses the highest priority water quality concerns, and supports targeted implementation of management practices to improve water quality efficiently.

BN-560

Nonpoint sources such as agricultural discharges are markedly different from traditional point source discharges. Both flow rates (or volumes) and constituent concentrations in agricultural runoff exhibit greater variability as a result of:

- Natural factors (e.g., watershed characteristics, soil type, weather patterns, antecedent conditions, natural sources)
- Anthropogenic factors (e.g., landscape and land use changes, laboratory and analytical variability)
- Agricultural practices (e.g., irrigation schedules, fertilizer or chemical applications, crop type, plant stage).

BN-561

Variability is most pronounced at the field level and decreases at the watershed level, where receiving waters integrate discharges from agricultural fields and other land use types in addition to base flows, reservoir releases, and other sources of water. The mixing and dispersion

BN-561, cont'd

that occurs within receiving waters attenuates variability, and receiving water flow rates and constituent concentrations are typically less variable than field-level discharges.

BN-562

The fundamental characteristics of nonpoint flows have profound implications for regulatory programs for nonpoint discharges. In large part, the framework used to regulate water quality under the Clean Water Act was developed for traditional point source discharges: water quality objectives, calculation procedures for numeric limits, and monitoring strategies are all typically based on assumptions that do not hold true for nonpoint discharges. Similarly, Porter-Cologne also applies more easily to traditional point source discharges. Although Porter-Cologne is broader than the Clean Water Act and does encompass the regulation of nonpoint source discharges, the implementation of Porter-Cologne often relies on policies and procedures borrowed from Clean Water Act implementation. Thus, there are no established procedures for determining if nonpoint source discharges "cause or contribute" to exceedances of water quality objectives in receiving waters.

BN-563

The Draft WDRs proposed by the Regional Board include certain features, such as numeric limits, that the State Water Board has declined to apply to irrigated lands. While management practices can and do improve water quality significantly, it has not been established that they will enable agricultural discharges to meet these numeric limits at the edge of field—and it has not been established that doing so is necessary to attain water quality objectives where they apply, in the receiving water.

BN-564

The Draft WDRs also incorporate ambitious goals for addressing a wide range of water quality and watershed concerns (e.g., streambank stabilization, maintaining base flows, flood conveyance and storage) that are typically regarded as watershed functions and that are difficult, if not impossible, for an individual rancher to address. Further, there is no clear scientific basis for requirements for setbacks and application of riparian area management tools in this context.

Monitoring programs for nonpoint sources must recognize that variability and the complex site-specific factors that impact water quality (e.g., management practices, soil type, rainfall intensity, crop type and plant growth stage, etc.) complicate efforts to evaluate trends in water quality and the effectiveness of management practices over time. A well-designed monitoring program should be designed to answer questions at a watershed level, such as:

BN-565

- Which pollutants and conditions are most indicative of impacts from irrigated agriculture?
- What are the concentrations of key pollutants in receiving waters, and how do they vary over time?
- What water quality objectives are exceeded in receiving waters over time, what is the frequency of exceedance in receiving waters, and can exceedances be tied to specific conditions (e.g., high intensity rain events, seasonal conditions)?
- How can the monitoring program be designed in a rotational manner, given resource limitations, to maximize the amount of information that can be obtained, to direct future monitoring, and to direct the implementation of management practices?

BN-566

Available information does not indicate that the Draft WDRs, including the numeric limits applied at edge of field, are feasible or achievable. At the same time, substantial data demonstrate that targeted, site-specific management practices improve water quality in runoff from agricultural lands. Because of the unique characteristics of nonpoint sources, watershed-based monitoring and adaptive management represent the best scientifically supported program to improve water quality and watershed health, and to gather data and information to determine goals that are feasible, achievable, and reasonable, and that optimize available resources. Reliance on data collected at edge of field often provides discontinuous data sets with significant data gaps, making data interpretation challenging. In fact, interpreting such data sets may increase the need for blanket assumptions or default values to extend locally collected, edge of field data to the watershed scale; these assumptions and default values may be borrowed from studies of other land use types or other areas not representative of the central coast of

BN-566, cont'd

California. Thus, failing to base the Draft WDRs on a holistic, watershed-based approach is likely to increase uncertainty rather than resolve it.

## Exhibit 7

Attachment A. Resumes

## Exhibit 8

Attachment A. Transcript of Proceedings

Attachment B. State Board Brief

Attachment C1. Review Central Valley Basin Plan

Attachment C2. Review Los Angeles Basin Plan

Attachment D. January 2019 Ag Response

## Note to Readers:

The materials provided in Exhibit 7, Attachment A, and Exhibit 8, have been omitted from this section because they do not contain specific comments on the DEIR or DAO 4.0.

These materials are available for review in Section 3.3.

## Letter BN: Abby Taylor-Silva et al, Grower-Shipper Association of Central California et al (June 22, 2020)

**Response to Comment BN-1**

The CCWB acknowledges the commenter's background and interests.

**Response to Comment BN-2**

The comment states that the commenter does not support Agricultural Order 4.0 due to economic costs, setbacks, ranch level monitoring, and concerns about the DEIR. In addition, this comment is summarized and responded to in Master Response 2.9.1.

**Response to Comment BN-3**

This comment is summarized and responded to in Master Response 2.1.14.

**Response to Comment BN-4**

The CCWB acknowledges the commenter's input.

**Response to Comment BN-5**

The comment generally describes the format of the comments. Responses to specific comments are provided in Responses to Comments BN-6 through BN-18 below.

**Response to Comment BN-6**

This comment is summarized and responded to in the following Master Responses: 2.9.1 and 2.9.3.

**Response to Comment BN-7**

The comment states that the Central Coast Water board must consider economic impacts when adopting the Order.

The Central Coast Water Board has appropriately taken into account economic considerations in the development of the Order, in accordance with Water Code sections 13263 and 13241. Contrary to the commenter's assertion, an "economic impact assessment" is not required when applying Water Code section 13241. "Section 13241 does not specify how a water board must go about considering the specified factors. Nor does it require that board to make specific findings on the factors." (City of Arcadia v. State Water Resources Control Board (2010) 191 Cal.App.4th 156, 177.) The Central Coast Water Board has summarized its economic considerations in the Findings at RAO Attachment A, pages 6-21, paragraphs 13-55. The Central Coast Water Board has revised the Findings to reflect that it has also taken into consideration economic impacts that were raised in the comments. (Attachment A, page 9, paragraph 27). Regarding whether economics were considered during the adoption of the water quality objectives upon which the receiving water limits are based, it is generally "presumed that official duty has been regularly performed." (Evid. Code, § 664; see City of Sacramento v. State Water Resources Control Bd. (1992) 2 Cal.App.4th 960, 976).

**Response to Comment BN-8**

See Response to Comment BN-7.

**Response to Comment BN-9**

The comment states that the CCWB must consider economic impacts that result in environmental impacts under CEQA. See Response to Comment BN-7. In addition, refer to Master Response 9, as well as Responses to Comments BN-203 to BN-211, and BN-288 to BN-415 for specific responses to the more detailed concerns presented further in these comments.

**Response to Comment BN-10 through BN-18**

See Response to Comment BN-7.

**Response to Comment BN-19**

The comment states that the Central Coast Water Board does not have the legal authority to adopt fertilizer nitrogen application limits. As described in Attachment A, Findings, at pages 96 and 99, paragraphs 12 and 19 and generally in Master Response 2.3.10 (Fertilizer Application Limits), one of the causes of the severe groundwater nitrate contamination observed in groundwater basins in the central coast region is the overapplication of synthetic fertilizer nitrogen. The application of nitrogen in excess of what is removed from the field results in residual fertilizer and a potential nitrogen waste discharge that could affect the quality of groundwater. An opinion of the California Attorney General has recognized that improper application of chemicals that leads to their presence in waters of the state constitute a waste discharge. (See 43 Ops. Cal. Atty. Gen. 302, 304 (1964)). Application limits are effectively limits regulating the amount of overapplied or residual fertilizer that is discharged.

The Central Coast Water Board is uniquely-situated to determine and impose fertilizer application limits that act as a proxy for overapplied or residual fertilizer. Since 2014, the Central Coast Water Board has collected and analyzed fertilizer application data, and the Board has developed technical expertise to distinguish between reasonable fertilizer application rates and those that reflect overapplication constituting a discharge. Targets and limits for fertilizer application at the 90$^{th}$ and then 85$^{th}$ percentile reflect rates of application that the Central Coast Water Board has determined will lead to a discharge of nitrogen.

RAO 4.0 incorporates a Third-Party Alternative Compliance Pathway for Groundwater Protection. Dischargers who elect to participate in the Third-Party Alternative Compliance Pathway will be subject to fertilizer nitrogen application targets only and will not be subject to limits. The imposition of limits is appropriate for Dischargers not participating in a Third-Party Alternative Compliance Pathway because the limits provide a clear compliance benchmark for Dischargers that are not accessing the educational and technical support of a Third-Party.

**Response to Comment BN-20**

The comment states that the proposed nitrogen discharge targets and limits are contrary to the State Water Board's direction in the East San Juaquin (ESJ Order).

RAO 4.0 has been revised in response to this comment and others challenging the legal and technical foundation of the nitrogen discharge limits. RAO 4.0 incorporates a Third-Party

Alternative Compliance Pathway for Groundwater Protection. Dischargers who elect to participate in the Third-Party Alternative Compliance Pathway will be subject to nitrogen discharge targets only and will not be subject to limits.

RAO 4.0 retains the nitrogen discharge limits for Dischargers not participating in the Third-Party Alternative Compliance Pathway. As discussed in Master Response 2.3.3 (Nitrogen Discharge Limits (Oppose)) and Master Response 2.5.8 (Incentivize Best Management Practices), the regulation of waste discharges from irrigated agriculture in the central coast region is distinguished from other regions of the state and is the basis for including nitrogen discharge limits in this Order. The imposition of limits is further appropriate for dischargers not participating in a Third-Party Alternative Compliance Pathway because the limits provide a clear compliance benchmark for dischargers that are not accessing the educational and technical support of a Third-Party.

RAO 4.0 acknowledges that the ESJ Order states: "It is premature at this point to project the manner in which the multi-year A/R ratio target values might serve as regulatory tools. That determination will be informed by the data collected and the research conducted in the next several years. If we move forward with a new regulatory approach in the future, we expect to do so only after convening an expert panel that can help evaluate and consider the appropriate use of the acceptable ranges for multi-year A/R ratio target values in irrigated lands regulatory programs statewide" (ESJ Order, p. 74).

In response to the ESJ Order discussion, this Order sets a time schedule that imposes the nitrogen discharge limits only beginning in 2027. The A-R data-based nitrogen discharge values established by this Order act as targets until 2027 to allow for the learning curve associated with the new monitoring and reporting requirement, as well as to provide additional time for the State Board to convene an expert panel for review and evaluation of the AR values as regulatory tools. Beginning in 2027, the A-R values are implemented as limits, with the final limit of 50 pounds per acre not effective until 2051. The Findings at RAO 4.0, Attachment A, page 70, paragraph 209.g. specifically state as follows: "If prior to 2027 or anytime thereafter an expert panel finds that another regulatory method would be more protective of water quality, or if the more protective regulatory methods are identified through other sources, the Central Coast Water Board will review the requirements of this Order and will make modifications as appropriate. (Order, Part 2, Section C.1; Order, Part 2, Table C.1-2)."

See also RAO, Attachment A, pages 69-70, paragraph 209.

**Response to Comment BN-21**

This comment is summarized and responded to in the following Master Responses: 2.1.14 and 2.2.3.

**Response to Comment BN-22 through BN-26**

This comment is summarized and responded to in Master Response 2.2.3.

**Response to Comment BN-27**

The comment states that the proposed nitrogen discharge targets and limits are contrary to the State Water Board's direction in the ESJ Order. Please refer to Response to Comments BN-20

and BN-262, Master Response 2.5.6 (Nitrogen Discharge Limits (Oppose)) and Master Response 2.7.16 (Incentivize Best Management Practices), and RAO 4.0, Attachment A pages 69-70, paragraph 209.

**Response to Comment BN-28**

This comment is summarized and responded to in the following Master Responses: 2.3.1 and 2.3.4.

**Response to Comment BN-29**

This comment is summarized and responded to in Master Response 2.3.7.

**Response to Comment BN-30 through BN-31**

This comment is summarized and responded to in the following Master Responses: 2.3.7 and 2.3.1.

**Response to Comment BN-32**

This comment is summarized and responded to in Master Response 2.3.2.

**Response to Comment BN-33**

This comment is noted.

**Response to Comment BN-34**

The comment states that DAO 4.0 improperly prohibits discharges in excess of nitrogen discharge limits. The language prohibiting discharges in excess of nitrogen discharge limits has been removed from RAO 4.0.

**Response to Comment BN-35**

This comment is summarized and responded to in the following Master Responses: 2.3.9; 2.3.3; 2.4.2; 2.5.5; 2.5.11; 2.5.2; 2.5.3; and 2.7.3.

**Response to Comment BN-36**

The comment states that it is inappropriate to require ranch-level groundwater discharge monitoring and reporting. The comment is summarized and responded to in the following Master Responses: 2.3.9; 2.4.2; 2.5.3; 2.5.5; 2.5.11; 2.6.6; and 2.7.3. In addition, refer to Response to Comment BN-269. The Central Coast Water Board acknowledges the burdens of conducting ranch-level groundwater discharge monitoring the commenter raises. Nevertheless, given that the purpose of the monitoring and reporting requirement is to understand the nature and extent of nitrate pollution in groundwater and ultimately to attain water quality objectives that are protective of the municipal and domestic supply beneficial use, the burden of the requirement is reasonably related the benefits to be obtained.

**Response to Comment BN-37**

Refer to Response to Comment BN-36.

**Response to Comment BN-38**

The comment generally states that surface water protection requirements improperly impose a traditional, point source regulatory program onto nonpoint source discharges. The commenter's general concerns are noted. Please refer to Responses to Comments BN-34 and BN-40.

**Response to Comment BN-39**

This comment is summarized and responded to in the following Master Responses: 2.3.9; 2.3.3; 2.4.2; 2.5.5; 2.5.11; 2.5.2; 2.5.3; and 2.7.3.

**Response to Comment BN-40**

The comment states that edge-of-field limits are improper because when the Central Coast Water Board adopted the Water Quality Control Plan for the Central Coast Region, it did not anticipate or consider applying water quality objectives at the edge-of-field like an effluent limitation.

The Water Code requires the regional board to consider section 13241 factors, including economic considerations, when adopting waste discharge requirements and does not specify how that consideration is to be conducted. Although the edge-of-field limits may not have been a reasonably foreseeable method of complying with the water quality objectives at the time the Central Coast Water Board adopted the relevant water quality objectives into the Basin Plan, the Central Coast Water Board is now considering the costs associated with applying those water quality objectives, through limits at the edge of field, during the development of this Order.

**Response to Comment BN-41**

Refer to Response to Comment BN-40.

**Response to Comment BN-42**

Refer to Response to Comment BN-34.

**Response to Comment BN-43**

The comment states that the CCWB cannot legally impose prohibitions on the discharge of pollutants generally, and specifically on pesticides. The language prohibiting the discharge of pollutants in excess of pesticide or toxicity limits have been removed from RAO 4.0. RAO 4.0 does not regulate the use of pesticides. See also Master Response 2.6.2.

**Response to Comment BN-44 through BN-45**

Refer to Response to Comment BN-43.

**Response to Comment BN-46**

The comment states that the pesticide limits are improper because they are not based on numeric pesticide water quality objectives. The comment further states that the CCWB has not considered or applied Water Code section 13241 to the limits expressed in Table C.3-2. The receiving water limits for pesticides and toxicity that are not based on total maximum daily loads (TMDLs) are derived from the narrative water quality objectives in the Basin Plan, as described

in Attachment A (Findings), pages 132-147, paragraphs 49-110, and Tables A.C.3-1 and A.C.3-2. The receiving water limits for pesticides are based on values from sources described in RAO 4.0, Attachment A, page 143, paragraph 110 and page 144, Table A.C.3-2. These values are considered to be protective of water quality because the U.S. Environmental Protection Agency (USEPA) aquatic life benchmark values are developed based on aquatic ecological effects of chemicals in surface water and from risk assessments for individual pesticides. A policy is not required for the CCWB to interpret a narrative water quality objective to establish a numeric receiving water limit. The CCWB considered the factors in Water Code section 13241 when adopting the narrative water quality objectives into the Basin Plan, and reconsideration of those factors when implementing the Basin Plan in waste discharge requirements is not required. Nevertheless, the factors were considered in the development of the requirements of DAO 4.0, including the receiving water limits for pesticides and toxicity.

**Response to Comment BN-47 through BN-48**

Refer to Response to Comment BN-46.

**Response to Comment BN-49 through BN-70**

This comment is responded to in Master Response 2.8.8.

**Response to Comment BN-71**

The comment states that access road requirements from the forest practice regulations are not applicable and need to be deleted. In response to this comment, the requirement for access roads to comply with forest practice regulations is removed from RAO 4.0.

**Response to Comment BN-72 through BN-73**

Refer to Response to Comment BN-71.

**Response to Comment BN-74**

The comment states that the definition of Discharge in Attachment C is overly broad. In response to this comment, the definition of Discharge has been revised to read:

“A release of a waste to waters of the state, either directly to surface waters or through percolation to groundwater. Wastes from irrigated agriculture include but are not limited to earthen materials (soil, silt, sand, clay, and rock), inorganic materials (metals, plastics, salts, boron, selenium, potassium, nitrogen, phosphorus, etc.) and organic materials such as pesticides. Discharges from irrigated lands regulated by this Order include discharges to surface water and groundwater, through mechanisms such as irrigation return flows, percolation, tailwater, tile drain water, stormwater runoff flowing from irrigated lands, stormwater runoff conveyed in channels or canals resulting from the discharge from irrigated lands, and runoff resulting from frost control or operational spills. These discharges could affect the quality of waters of the state and impair beneficial uses.”

**Response to Comment BN-75 through BN-77**

Refer to Response to Comment BN-74.

**Response to Comment BN-78**

This comment is responded to in Master Response 2.8.8.

**Response to Comment BN-79**

The comment states that the definition of Nonpoint Source Pollution in Attachment C incorrectly states that diffuse pollution sources are not generally subject to National Pollutant Discharge Elimination System (NPDES) permitting and that nonpoint source pollution is not subject to NPDES permitting. In response to this comment, the definition of Nonpoint Source Pollution has been revised to read:

"The Basin Plan states that nonpoint sources of water pollution are generally defined as sources which are diffuse (spread out over a large area). Nonpoint sources of pollution are not subject to NPDES permitting. The wastes are generally carried off the land by runoff. Common nonpoint sources of pollution are activities associated with agriculture, timber harvest, certain mining, dams, and saltwater intrusion."

**Response to Comment BN-80**

The comment states that the definition of Waters of the State in Attachment C is improperly broadened. The definition of Waters of the States is broadly construed; therefore, the Central Coast Water Board disagrees that the definition in Attachment C of the DAO 4.0 is improperly broadened. Nevertheless, the definition of Waters of the State has been revised to read:

"Any surface water or groundwater, including saline waters, within the boundaries of the State as defined in the California Water Code Sec. 13050(e), whether private or public. 'Waters of the state' includes all 'waters of the U.S.'"

**Response to Comment BN-81**

The comment states that the definition of waterbody in Attachment C is overly broad. The definition of Waterbody in Attachment C has been removed. The Order at page 11, paragraph 11.p. has been revised to clarify that for the purpose of that paragraph, "waterbodies" includes wetlands, estuaries, marshes, swamps, lakes, ponds, vernal pools, rivers, streams, creeks, springs, artesian wells, drainages, canals, and all other waterbodies (natural or artificial) with defined banks and water at least a portion of a year).

**Response to Comment BN-82**

The comment generally states that the Draft Order is legally deficient in many ways and cannot be adopted as proposed. The commenter's concerns are noted and addressed through specific responses to comments above.

**Response to Comment BN-83**

The introductory comment alleges that the DEIR constitutes a prejudicial abuse of discretion and that it is not supported by substantial evidence. Please refer to Response to Comments BN-89 to BN-244 for specific responses to the more detailed concerns presented further in these comments.

**Response to Comment BN-84**

The comment generally alleges that the DEIR does not comply with CEQA. Please refer to Responses to Comments BN-89 to BN-244 for specific responses to the more detailed concerns presented further in these comments.

**Response to Comment BN-85**

The comment generally alleges that Agricultural Order 4.0 contains unlawful requirements that are not supported by law and put growers at a competitive disadvantage. This comment does not specifically identify how the Order requirements are unlawful and places growers at a competitive disadvantage. Responses to specific comments are addressed below.

**Response to Comment BN-86**

The comment states that the CCWB should comply with all laws, including CEQA, and act appropriately and reasonably when adopting Agricultural Order 4.0. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-87**

The comment summarizes some goals of the CEQA statute. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-88**

The comment alleges that the CCWB failed to comply with CEQA as a result of alleged inadequacies in the DEIR. Please refer to Responses to Comments BN-89 to BN-244 for specific responses to the more detailed concerns presented further in these comments.

**Response to Comment BN-89**

The comment summarizes certain provisions of CEQA, and states that the CCWB must comply with CEQA's objectives. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-90**

The comment alleges that the DEIR makes improper conclusions of "speculative" and "less than significant." The comment also describes the purpose of an EIR under CEQA. This comment does not specifically identify how the conclusions reached by the DEIR are incorrect. Therefore, no further response is needed.

**Response to Comment BN-91**

The comment states that the DEIR fails to satisfy the requirements of CEQA and the CEQA Guidelines because it fails to analyze certain economic impacts of Agricultural Order 4.0. Please refer to Responses to Comments BN-203 to BN-211 and Master Response 2.10 for specific responses to the more detailed concerns presented in the commenter's later comments.

**Response to Comment BN-92**

The comment summarizes requirements for project descriptions under CEQA. The comment is noted. It does not address specific substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-93**

The comment summarizes requirements for project descriptions under CEQA. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-94**

The comment summarizes case law indicating the importance of an adequate project description. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-95**

The comment states that the DEIR's project description "truncates" the assessment of impacts and consideration of meaningful alternatives. Please refer to Responses to Comments BN-96 to BN-104 and BN-227 to BN-238 for specific responses to the more detailed concerns presented in these comments.

**Response to Comment BN-96**

The comment states that the DEIR does not contain an accurate project description, and instead references Appendix A, which consists of the Draft Order and its appendices. The project description is provided in Chapter 2, *Project Description*, which consists of 44 pages describing the Proposed Project. As required by the CEQA Guidelines, the project description contains the following information:

- The precise location and boundaries of the Proposed Project (CEQA Guidelines, § 15124(a); *see* DEIR pp. 2-8 to 2-9);
- A statement of the objectives of the Proposed Project (CEQA Guidelines, § 15124(b); *see* DEIR p. 2-10);
- A general description of the project's technical, economic, and environmental characteristics (CEQA Guidelines, § 15124(c); *see* DEIR pp. 2-12 to 2-43); and
- A statement briefly describing the intended uses of the EIR (CEQA Guidelines, § 15124(d); *see* DEIR p. 2-43 to 2-44).

The Project Description provides a description of the project's characteristics as required by section 15124(c) by summarizing DAO 4.0, first by identifying the requirements contained in the Order, and then comparing these requirements to existing requirements contained in Agricultural Order 3.0. The CEQA Guidelines specifically state that the project description must contain the information described above, but "should not supply extensive detail beyond that needed for evaluation and review of the environmental impact." (CEQA Guidelines, § 15124.)

Appendix A has been included with the DEIR so that readers may refer to that document when seeking additional detail regarding the Proposed Project.

**Response to Comment BN-97**

The comment asserts that the project description in the DEIR misrepresents the project, as compared to the appendix containing the full text of the proposed agricultural order. It states that the use of phrases such as "numeric limits for discharges" are "cursory, does not provide the reader or decision-makers with the full scope and breadth of the project, prevents adequate review, and improperly describes the project in such a way that understates and fails to recognize project impacts."

The statement that the Proposed Project will set "numeric limits for dischargers" is included in a brief initial textual summary of the requirements of Agricultural Order 4.0. Prior to that reference, the project description states several times that Agricultural Order 4.0 would replace the existing permit governing agricultural discharges that are established under Agricultural Order 3.0, and would update waste discharge requirements (WDRs) for irrigated agriculture operations. The project description then goes on to list the provisions in Agricultural Order 4.0 that set specific limits and targets for discharge of nitrogen and fertilizers. The project description does not need to include each specific limit or target for each type of agricultural discharge. This would constitute "excessive detail," which is discouraged by CEQA Guidelines section 15124 for the main body of the EIR. Appendix A was circulated with the DEIR so that readers could refer to the full text of the DAO 4.0 if they sought additional detail regarding the Proposed Project. In response to the comment that faults the project description for not recognizing project impacts, it should be noted that the project description is not the section of the EIR in which impacts are meant to be evaluated. Potentially significant impacts are evaluated in Chapter 3 of the EIR. (*See e.g.,* CEQA Guidelines §§ 15064.7, 15126, 15126.6.)

The comment further states that Table 2-3 does not explain the substance of the draft Order and references drafts from March and May 2019. As noted above, the DEIR Project Description was drafted to convey the essential aspects of DAO 4.0 without overwhelming the reader with excessive detail, as directed by the CEQA Guidelines. Table 2-3 provided cross-references to the locations where detailed information on the provisions of DAO 4.0 could be viewed in Appendix A. The format of Table 2-3 was designed to mimic the "conceptual options tables" for Agricultural Order 4.0, which had been circulated for public review and discussed at the March and May 2019 CCWB Board workshops and at prior meetings. This approach provides the reader with a frame of reference so as to better understand where the components that he/she may have reviewed and commented upon previously were located in the Order. Note that the heading in the first table should have read: "Ag Order 4.0 – Updated Option." This has been corrected in the FEIR.

The comment further expresses concern that Table 2-4 "truncates" the requirements of the draft Order so that the commenter cannot understand what the Order requires. The comment does not identify any specific provisions that are confusing or any examples where the requirements may be difficult to understand. Therefore, no further response is needed.

**Response to Comment BN-98**

The comment states that the project description is inadequate because it does not include sufficient detail for the reader to understand what the project is. The comment does not identify any specific provisions or aspects of the project that are not included or described in the project description.

In addition, the comment states that the environmental setting is "partially based on old data and fails to convey the important features of Central Coast agriculture that are relevant for assessing the economic impact of the Order." The comment does not identify any specific data in the environmental setting that is outdated, or that would impact the DEIR's economic analysis. Therefore, no further response is needed.

**Response to Comment BN-99**

The comment states that the project description in the EIR does not describe the entire project being proposed, but rather describes only selected aspects of the Proposed Project. The comment then expresses an opinion that the DEIR does not treat agriculture as part of the environment.

The purpose of the project is described in Section 2.4, *Project Purpose & Objectives*, in Chapter 2, *Project Description*, as follows:

> The purpose of Agricultural Order 4.0 is to:
>
> 1. Protect and restore beneficial uses and achieve water quality objectives specified in the Basin Plan for commercial irrigated agricultural areas in the central coast region by:
>    a. Minimizing nitrate discharges to groundwater;
>    b. Minimizing nutrient discharges to surface water;
>    c. Minimizing toxicity in surface water from pesticide discharges;
>    d. Protecting and restoring riparian and wetland habitat, and
>    e. Minimizing sediment discharges to surface water.
> 2. Effectively track and quantify achievement of 1.a. through e. over a specific, defined time schedule.
> 3. Comply with the State Nonpoint Source Pollution Control Program, the State Antidegradation Policy, relevant court decisions such as those pertaining to Coastkeeper et al lawsuits, the precedential language in the Eastern San Joaquin Agricultural Order, and other relevant statutes and water quality plans and policies, including Total Maximum Daily Loads in the central coast region.

(DEIR, p. 2-10.) This same statement of purpose also appears in full in the Executive Summary (p. ES-1) and the Alternatives Analysis (p. 4-4). The purpose of the project is clearly stated, in accordance with CEQA Guidelines section 15124(b). Note that since the DEIR and DAO 4.0 were circulated, Project Objective 1.d has been revised to remove "and restoring," as reflected in FEIR

Volume 1. Please refer to Response to Comment BN-96 for a discussion of how the project description meets the requirements of CEQA.

In response to the concern that the DEIR does not treat agriculture as part of the environment, every section of Chapter 3, *Environmental Analysis*, contains a discussion of agriculture and/or agricultural practices. Section 3.1, *Agriculture and Forestry Resources*, focuses entirely on analyzing the potential impacts of the project on agricultural lands using the CEQA Guidelines Appendix G significance criteria, including potential for direct conversion of agricultural land to non-agricultural uses due to Proposed Project activities, conflicts with existing zoning for agricultural use or Williamson Act contracts, or other changes to the environment that could result in conversion of agricultural land to non-agricultural use. Similarly, Section 3.5, *Economics*, contains a detailed description of regulatory compliance costs for agricultural producers and an analysis the impacts of regulatory costs of the project for Central Coast agricultural producers.

**Response to Comment BN-100**

The comment states that Proposed Project impacts are understated due to flaws in the Project Description. The comment does not identify how the analysis of project impacts is affected by the Project Description. Therefore, no further response is required.

**Response to Comment BN-101**

The comment states that foreseeable impacts, alternatives, and mitigation measures cannot be prepared or evaluated because the Project Description is deficient. As an example, the comment states that the DEIR fails to analyze the consequences and environmental effects of riparian setbacks as related to food safety, human health, insects, flood risk, and fire risk. As noted in Response to Comment BN-97, the project description is not the section of the EIR in which impacts are meant to be evaluated. Potentially significant impacts are evaluated in Chapter 3 of the EIR. (*See e.g.,* CEQA Guidelines §§ 15064.7, 15126, 15126.6.) In addition, please note that RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8.

**Response to Comment BN-102**

The comment states that the Project Description does not include a general description of the Proposed Project's technical, economic, and environmental characteristics. As support, the comment states that there is no description of the agricultural environmental characteristics and that the location description is not adequate.

The Project Description contains a general description of the environmental characteristics of the project itself, specifically the environmental requirements of Agricultural Order 4.0. CEQA does not require a project description to contain descriptions of all resources that may be affected or impacted by the Proposed Project. The environmental setting is described under each resource topic, including information about the physical environmental conditions in the vicinity of the Proposed Project, as those conditions relate to each resource topic, as required by CEQA Guidelines section 15125. The location maps and description of the project location in Section 2.3 of the Project Description are included to provide the reader with an understanding of the Proposed Project location and boundaries, as required by CEQA Guidelines section 15124(a).

The comment also states that there is no general description of the economic characteristics of the Proposed Project. The economic characteristics of the Proposed Project are described in detail in Section 3.5, *Economics*, as part of the environmental setting for that resource topic.

**Response to Comment BN-103**

The comment states that the DEIR's Project Description is flawed because the document describes (in Section 3.1, *Agriculture and Forestry Resources*) the maximum number of acres that would be potentially taken out of production due to proposed riparian setback requirements. The comment does not explain how these data are a deficiency in the Project Description. Also, please note that RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8.

**Response to Comment BN-104**

The comment requests that the DEIR be revised to include a revised Project Description. Please refer to Responses to Comments BN-92 to BN-103 for specific responses to the more detailed concerns presented in the commenter's previous comments.

**Response to Comment BN-105**

The comment states that the project purpose has changed since the Initial Study. CEQA does not require the project purpose to remain stable and unchanged between the Initial Study and the EIR. Note that one of CEQA's specified purposes of preparing an Initial Study is to "enable [a] Lead Agency to modify a project" before preparing an EIR. (CEQA Guidelines, § 15063(c)(2).)

The comment further states that the project purpose is described differently throughout the DEIR. As noted in the comment, the purpose of the Proposed Project is identified clearly in the Project Description, Section 2.4, with three primary objectives. (*See* Response to Comment BN-99.) This same statement of purpose, with all three objectives, also appears in full in the Executive Summary (p. ES-1) and the Alternatives Analysis (p. 4-4). The Alternatives Analysis also contains a section where different project alternatives are compared directly with these three objectives (pp. 4-18 to 4-19.) The comment cites a single phrase in the document, out of context, to argue that the Proposed Project purpose has changed. The phrase appears in the Alternatives Analysis section, where the DEIR describes the Environmentally Superior Alternative analysis. In context, the DEIR states:

Due to the nature of the Proposed Project, it is difficult to designate any of the remaining alternatives (i.e., other than the No Project Alternative) as environmentally superior. Unlike many of the more "typical" projects evaluated under CEQA (e.g., a housing development), the purpose of the Proposed Project is largely to correct existing ongoing impairments in water quality caused by discharges from irrigated agricultural lands. *In other words, the purpose of the Proposed Project is to benefit the environment*.

(DEIR, p. 4-40, emphasis added.) In this context, the phrase does not contradict or change the stated purpose of the Proposed Project. The purpose and objectives of the DEIR are clearly and consistently described.

The comment further states that the DEIR has left "agriculture" out of the definition of "environment." The stated purpose of the Proposed Project does not explicitly use the term "environment." The comment does not identify any statute or case law that would require either "agriculture" or "environment" to be included in the purpose or objectives of the Proposed Project. Notably, the CEQA Guidelines also do not explicitly include "agriculture" in the definition of "environment." (CEQA Guidelines, § 15360.) The DEIR complies with CEQA by providing a rigorous analysis of the environmental impacts of the Proposed Project, including the potential impacts of the Proposed Project on agricultural resources (*see* Section 3.1, *Agriculture and Forestry Resources*).

**Response to Comment BN-106**

The comment states that the Proposed Project's objectives do not mention the agricultural environment or include maintaining viable agricultural activity through reasonable regulations. The comment does not identify any statute or case law that would require this specific language to be included in the Proposed Project objectives. The mission of the CCWB is "developing and enforcing water quality objectives and implementing plans that will best protect the area's waters while recognizing our local differences in climate, topography, geology and hydrology." The CCWB develops, implements, and enforces reasonable regulatory tools, such as permits, in order to achieve these goals. In protecting the water quality in the central coast region, the CCWB must balance the needs of industry, agriculture, municipal districts, and the environment.

**Response to Comment BN-107**

The comment states that DEIR Objective 1.d, protecting and restoring riparian and wetland habitat, is a land use control plan, and therefore outside the scope of the CCWB's authority.

The CCWB's authority includes the reasonable protection of water quality for beneficial uses, including wildlife and warm and cold water habitat, and aquatic life. [Water Code §§ 13301, 13241; CCWB, 2019.] As explained in the RAO 4.0 Findings, Attachment A, pages 156 and 164-171, paragraphs 150-153 and 175-212, riparian and wetland areas increase groundwater recharge, reduce erosion, and reduce the transport of sediment, nutrients, and other pollutants from agricultural activities into waterbodies. Also, please note that the RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8. DEIR Objective 1.d also has been revised to remove "restoring," consistent with the removal of the riparian component from the Order.

In addition, the comment states that DEIR Objective 1.e, minimizing sediment discharges to surface water, conflicts with the CCWB's Basin Plan Section 5.2, which indicates that local government should take the lead in sediment management, with CCWB support. The CCWB's Basin Plan does not indicate that local government will be the sole entity or agency with authority to regulate sediment management, nor does it cede regulatory authority from the CCWB to local governments. DEIR Objective 1.e does not conflict with the Basin Plan.

**Response to Comment BN-108**

The comment requests that the DEIR be revised to include revised project purpose objectives. Please refer to Responses to Comments BN-105 to BN-107 for specific responses to the more detailed concerns presented in the commenter's earlier comments.

**Response to Comment BN-109**

The comment states that the environmental baseline and environmental setting are flawed and incomplete. The comment states that the setting omits programs including the Sustainable Groundwater Management Act (SGMA). The DEIR includes a description of the SGMA on pages 3.9-9 and 3.9-10 as part of the description of the setting. The comment further states that other aspects of the environmental setting are "truncated" but does not identify any specific information that the DEIR should have included. Therefore, no further response is needed.

The comment also states that the environmental setting does not accurately describe existing environmental conditions. The comment does not identify any specific inaccuracies. Therefore, no further response is needed.

**Response to Comment BN-110**

The comment states that the estimate in the DEIR of the number of acres that may be taken out of production as a result of the proposed riparian setbacks is too low. Please note that the RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8.

**Response to Comment BN-111**

The comment states that the environmental setting is partially based on old data and is therefore insufficient for assessing the economic impact of Agricultural Order 4.0. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

As described in FEIR, Volume 1, Chapter 3, *Introduction to the Environmental Analysis*, the environmental setting sections used data that were available to describe the existing conditions. With respect to the data shown in Table 3.5-1, no more recent report showing the breakdown of agricultural economic information specific to the central coast region could be found during preparation of the DEIR. The commenter does not identify how use of these data affected the conclusions reached in the impact analysis. Therefore, no further response is needed.

Similarly, the EIR included information from a study by University of California Cooperative Extension – Agricultural Issues Center on the costs of production for growers of romaine hearts in the central coast region. This information was included to provide the reader (assumed to potentially be a lay person without detailed knowledge of agricultural economics) a sense of the costs of production for an example crop. The EIR acknowledged that a single crop is not necessarily representative of all crops or the region as a whole, stating as such (see FEIR, Volume 1, Section 3.5, *Economics,* page 3.5-8) and comparing the results of the romaine hearts study to a similar study done for strawberries. Again, the commenter does not describe how use of these data in Section 3.5 impaired the environmental impact analysis.

**Response to Comment BN-112**

The comment expresses concern that the environmental baseline is flawed because the DEIR does not use the date of the Notice of Preparation (NOP) as the baseline. The original DEIR

language designated the baseline as Fall 2017, although the NOP was issued in February 2018. The DEIR language referenced by the commenters was inarticulate and has been clarified in the FEIR (see Volume 1, Section 3.0, *Introduction to the Environmental Analysis,* page 3.0-2). In accordance with the CEQA Guidelines, the baseline used in the DEIR analysis was the physical environmental conditions that existed at the time the NOP was published. In some cases, 2017 or earlier data were used in describing certain environmental characteristics since more recent data were not yet published or available at the time the DEIR was prepared.

In addition, the comment states that the DEIR's cost analysis should have included a 2018 study of regulatory cost data for lettuce. But "CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commenters." (CEQA Guidelines § 15204(a).) The 2018 study (Hamilton and McCullough) referenced by the commenters does show that regulatory costs have increased markedly since 2006, but does not show substantially different information from what is presented in the EIR. The 2018 study shows total regulatory costs of $977.30 per acre for a Salinas Valley lettuce grower in 2017. This is higher than the per acre costs shown in the McCullough et al. (2017) study (see FEIR, Volume 1, Section 3.5, *Economics,* Tables 3.5-5 and 3.5-6), for example, but includes additional, non-environmental regulatory compliance costs, such as worker's compensation, Affordable Care Act requirements, and labor wage requirements. The 2018 study referenced by the commenters shows that water quality regulations constitute 1.9 percent (i.e., $18.57 per acre) of the Salinas Valley lettuce grower's total regulatory compliance costs, lending credence to the notion that Agricultural Order compliance represents a relatively small proportion of a grower's costs. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the EIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-113**

The comment expresses concern that the baseline used in the DEIR is deficient because it does not include full implementation of SGMA. The CEQA Guidelines state that "a lead agency *may* define existing conditions by referencing […] conditions expected when a project becomes operational [when] supported by substantial evidence." (CEQA Guidelines § 15125(a); *emphasis added*.) Further, the CEQA Guidelines provide that the lead agency may only include predicted future conditions if it "demonstrates with substantial evidence that use of existing conditions would be either misleading or without informative value to decision makers and the public." (CEQA Guidelines § 15125(b).) The CCWB does not have evidence indicating that the environmental setting as presented would be misleading or without informative value. In addition, the DEIR's environmental setting includes a description of the SGMA. Please refer to Response to Comment BN-109.

**Response to Comment BN-114**

The comment expresses concern that the DEIR does not conduct an analysis of whether the Proposed Project would conflict with groundwater sustainability plans. The comment fails to provide substantial evidence that an analysis of such plans would substantially change the conclusions of the DEIR. (CEQA Guidelines § 15204(c).)

**Response to Comment BN-115**

The comment expresses concern that the DEIR does not provide substantial evidence of its assumptions regarding economics, impacts, agricultural land conversion, recharge, and water use and therefore does not adequately describe existing conditions. The DEIR describes the existing conditions for economics in Section 3.5, *Economics*. Agricultural land conversion is described and analyzed in Section 3.1, *Agriculture and Forestry Resources*. Recharge and water use are described in Section 3.11, *Hydrology and Water Resources*. The evidence, resources and data relied upon are identified in each chapter, and described in additional detail in Chapter 7, *References*. The comment does not specifically identify how the DEIR's description of existing conditions inaccurately characterizes these resources/issues. Therefore, no further response is needed.

**Response to Comment BN-116**

The comment expresses concern that the Proposed Project baseline as presented in the DEIR is not supported by substantial evidence and presents unsupported conclusions, figures, or references without analysis. Please refer to Response to Comment BN-112 for discussion of the baseline used for the DEIR. The comment does not specifically identify what figures or references would require additional support or analysis as part of the environmental setting description. Each chapter contains citations to evidence, resources, and data relied upon to describe the environmental setting, and each reference is described in additional detail in Chapter 7, *References*.

**Response to Comment BN-117**

The comment requests that the DEIR be revised to include a revised project baseline. Please refer to Responses to Comments BN-109 to BN-116 for specific responses to the more detailed concerns presented in the commenter's earlier comments.

**Response to Comment BN-118 through BN-120**

The comment cites provisions of CEQA regarding the determination of significant effects. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-121**

The comment states that the DEIR does not disclose, analyze and/or mitigate the Proposed Project's environmental impacts as required, and that its conclusions are not supported by substantial evidence. Please refer to Responses to Comments BN-123 to BN-226 for specific responses to the more detailed concerns presented in the commenter's later comments.

**Response to Comment BN-122**

The comment states that the DEIR does not contain an adequate review of Agricultural Order 4.0 because it does not review and rely on all data, facts, evidence, and personal knowledge. Please refer to Responses to Comments BN-123 to BN-226 for specific responses to the more detailed concerns presented in the commenter's earlier comments.

**Response to Comment BN-123**

The comment states that under CEQA, the burden of proof is on the lead agency to show a project will not have an impact on the environment. The comment is noted, although it is a gross oversimplification of the standards set forth in the cited section of the CEQA Guidelines. Summarized more accurately, CEQA Guidelines Section 15064 provides that a lead agency must determine whether a project may result in a significant effect on the environment and that determination must be based on substantial evidence. The comment does not pertain to the substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-124**

The comment states that the DEIR must review agriculture as part of its review of impacts on agriculture and forestry resources. Section 3.1 provides an analysis of the Proposed Project's potential impacts on agriculture and forestry resources.

The comment additionally states that the DEIR should have analyzed impacts on the environment as a result of irrigation management, such as soil salinity. The comment does not provide substantial evidence that the Proposed Project would have significant impacts to the environment as a result of irrigation management.

**Response to Comment BN-125**

The comment states that water quality regulations that aim to improve environmental quality can have unintended consequences. The comment gives several examples that are not specific to the DEIR or the Proposed Project. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-126**

The comment states that the determination whether a project may have a significant impact on the environment must be made on the basis of scientific and factual data. In addition, the comment cites a series of oral and written comments regarding Agricultural Order 4.0 that were submitted during the earlier development of the order and the CEQA scoping process. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary. Please note, however, that all comments submitted during the order development process were considered in developing DAO 4.0. Likewise, all comments submitted during the CEQA scoping period were considered during preparation of the DEIR. Scoping comments are summarized in Table 1-1 (pages 1-5 to 1-6) and Table 4-1 (pages 4-2 to 4-3) of the FEIR, Volume 1. The EIR also evaluated the alternative proposal submitted by agricultural organizations (Ag Organization Alternative) during the draft conceptual regulatory options public review period as part of the alternatives analysis in Chapter 4 of the EIR.

**Response to Comment BN-127**

The comment cites a January 21, 2019 letter from Costa Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-128**

The comment cites a January 15, 2019 letter from Costa Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-129**

The comment cites a January 21, 2019 letter from Huntington Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-130**

The comment cites a January 17, 2019 letter from Berry Mist Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-131**

The comment cites a January 21, 2019 letter from California Farm Bureau Federation to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-132**

The comment cites a January 15, 2019 letter from California Avocado Commission to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-133**

The comment cites a January 21, 2019 letter from University of California Cooperative Extension Monterey County to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-134**

The comment cites a January 21, 2019 letter from Grower-Shipper Association of Santa Barbara and San Luis Obispo Counties to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-135**

The comment cites a January 21, 2019 letter from Grower-Shipper Association of Central California, Grower-Shipper Association of Santa Barbara and San Luis Obispo Counties, Monterey County Farm Bureau, Central Coast Groundwater Coalition, Western Growers, and California Farm Bureau Federation on behalf of Monterey County Farm Bureau, San Benito County Farm Bureau, San Luis Obispo County Farm Bureau, San Mateo County Farm Bureau, Santa Barbara County Farm Bureau, Santa Clara County Farm Bureau, and Santa Cruz County Farm Bureau to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-136**

The comment cites an April 30, 2018 letter from Grower-Shipper SB SLO, Grower-Shipper CC, Western Growers, San Luis Obispo (SLO) County Farm Bureau, California Strawberry Commission, and Central Coast Groundwater Coalition to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-137**

The comment cites examples from the DEIR in which the DEIR states certain factors or impacts are speculative. Please refer to Responses to Comments BN-138 and BN-149 for specific responses to the concerns presented in the commenter's later comments.

**Response to Comment BN-138**

The comment expresses concern that the DEIR's findings that certain factors or impacts are speculative "shift the burden of identifying significant environmental impacts from the lead agency to the public in direct violation of CEQA." The comment does not identify how the DEIR's findings that certain impacts are speculative would violate CEQA. Rather, CEQA makes clear that a lead agency should not speculate about potential significant impacts (CEQA Guidelines § 15145). Section 15187(d) of the CEQA Guidelines also discusses the analysis required for regional water quality control boards when adopting a rule or regulation:

> The environmental analysis shall take into account a reasonable range of environmental, economic, and technical factors, population and geographic areas, and specific sites. The agency may utilize numerical ranges and averages where specific data is not available, but is not required to, nor should it, engage in speculation or conjecture.

The DEIR's conclusions that certain impacts are speculative are consistent with CEQA requirements.

The comment also expresses concern that the DEIR's conclusions ignore relevant evidence, such as "relevant personal observations." CEQA requires that a lead agency consider the views held by members of the public in determining whether an effect will be adverse or beneficial. (CEQA Guidelines § 15064(c).) The DEIR does take public concerns into account by discussing the possibilities of adverse effects caused by riparian and operational setbacks and increased costs

of compliance, as raised by commenters and the general public. In addition, the contents of the comments referenced are evaluated in detail in the DEIR in Chapter 4, *Alternatives Analysis*. (DEIR, pp. 4-12 to 4-28.) As noted, CEQA does not require that a lead agency conduct every test or perform all research, study, and experimentation recommended or demanded by commenters." (CEQA Guidelines § 15204(a).) The comment does not provide substantial evidence that the DEIR would find a new previously undisclosed significant impact or a substantially worse impact based on the personal observations of commenters.

**Response to Comment BN-139**

The comment cites a January 21, 2019 letter from Costa Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-140**

The comment cites a January 15, 2019 letter from Costa Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-141**

The comment cites a January 21, 2019 letter from Huntington Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-142**

The comment cites a January 17, 2019 letter from Berry Mist Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-143**

The comment cites a January 15, 2019 letter from California Avocado Commission to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-144**

The comment states an example that an adjacent property owner may testify to traffic conditions based on personal knowledge. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-145**

The comment states that the DEIR's cost analysis should have included a 2018 study regarding regulatory cost data in the produce industry. Please refer to Response to Comment BN-112, which discusses the Hamilton and McCullough (2018) study. The comment does not indicate how the data or conclusions presented in the study would change the analysis presented in the DEIR. The comment does not provide substantial evidence that the DEIR would find a new previously undisclosed significant impact or a substantially worse impact based on the 2018 study.

**Response to Comment BN-146**

The comment states that the information cited in comments BN-138 to BN-145 provides evidence of significant or potentially significant impacts on environmental resources. The comment does not indicate how the information presented in personal observations or the 2018 study would change the analysis presented in the DEIR. The comment does not provide substantial evidence that the DEIR failed to disclose a new significant impact or substantially worse impact based on the information cited by the commenter.

The comment states that if a local agency "has failed to study an area of possible environmental impact, a fair argument may be based on the limited facts in the record," citing *Sundstrom v. County of Mendocino* (1988) 202 Cal. App. 3d 296, 311. The comment does not indicate any areas of possible impacts the DEIR has failed to study. Rather, the commenter appears to be asserting that the DEIR should have reached different conclusions of impact significance based on the commenter's referenced data. The "fair argument" cited by the commenter does not apply under those circumstances. Instead, the lead agency's EIR is assessed for whether its conclusions are supported by substantial evidence, even if experts might disagree about the data sources and methodology employed in the analysis. In addition, the "fair argument" standard applies only when a party is challenging the failure of a lead agency to undertake an EIR. The CCWB has completed a full environmental analysis by preparing an EIR. Moreover, "pursuant to [CEQA Guidelines] Section 15064, an effect shall not be considered significant in the absence of substantial evidence." (CEQA Guidelines § 15204(c).) The comment does not provide substantial evidence that the DEIR failed to disclose a new significant impact or substantially worse impact based on the information cited by the commenter.

**Response to Comment BN-147**

The comment expresses concern that the DEIR's conclusions that certain impacts are speculative are improper and contrary to law. Please refer to Response to Comment BN-138 for a more detailed response to this comment.

**Response to Comment BN-148**

The comment cites provisions of CEQA that an EIR must include the fullest extent of information available and that a determination of significant impacts must be based on the substantial evidence in light of the whole record. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-149**

The comment expresses concern that the DEIR is based on speculation, unsupported conclusions, and uncertainty. As support for this statement, the comment cites instances where the DEIR uses terms such as "uncertainty," "speculative," "could be," "insufficient," "not possible," "unknown," and "may be." The DEIR is using these terms to explain impacts where it is not able to provide specific facts or conclusions regarding a particular impact because sufficient information does not exist and therefore the agency will not provide a speculative conclusion. CEQA makes clear that a lead agency should not speculate about potential significant impacts. Please refer to Response to Comment BN-138. (*See also, e.g.,* 13 Pub. Res. Code § 21080 (e)(2), "Substantial evidence is not argument, speculation, unsubstantiated opinion, or narrative…"; 13 Pub. Res. Code § 21159(a), "The agency shall not be required to engage in speculation or conjecture"; CEQA Guidelines § 15145, "If, 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.")

**Response to Comment BN-150**

The comment expresses concern that the DEIR is based on speculation, uncertainty, and inaccurate conclusions. Please refer to Response to Comment BN-149 for a detailed response to this comment.

**Response to Comment BN-151**

The comment states that "by speculating on what could happen, rather than on actualities, an improper environmental baseline and resulting conclusions regarding potential significant agricultural and economic impacts have been drawn." The intent of this comment is not clear. The preceding comments express concern that the DEIR fails to provide conclusions because it finds impacts to be speculative or uncertain. This comment appears to argue that the DEIR is engaging in speculation. In either case, the comment does not provide substantial evidence that the DEIR would find a new previously undisclosed significant impact or a substantially worse impact based on the information cited by the commenter.

In addition, the comment states that the DEIR does not satisfy the requirements of CEQA because it does not provide substantial evidence to support its conclusions, and that it improperly relies on uncertainty and speculation. Please refer to Responses to Comments BN-148 to BN-151 for specific responses to the concerns presented in the comments.

**Response to Comment BN-152**

The comment describes the importance of agriculture and the agricultural economy in California and on the Central Coast. The comment is noted.

**Response to Comment BN-153**

The comment states that the economic analysis in the DEIR is limited and does not capture all of the impacts of Agricultural Order 4.0 because it fails to quantify costs of compliance. The DEIR details compliance costs for a range of anticipated scenarios and management practices. (*See* DEIR pp. 3.5-13 to 3.5-30.) Because Agricultural Order 4.0 gives growers different options for compliance, however, the DEIR cannot definitively predict overall costs of the program or for any particular ranch or farm. In response to comments related to the DEIR's analysis of

economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the EIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-154**

The comment states that changes in agricultural production may produce "ripple effects," which cause changes in overall economic production. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-155**

The comment expresses concern that although the DEIR concludes that the conversion of farmland to non-agricultural use is a significant and unavoidable impact, the analysis is flawed. Please refer to Responses to Comments BN-156 to BN-202 for specific responses to the concerns presented in the commenter's later comments.

**Response to Comment BN-156**

The comment expresses concern that the DEIR underestimates the amount of agricultural land that would be converted due to riparian and operational setbacks. Please note that the RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8.

**Response to Comment BN-157**

The comment expresses concern that the DEIR does not include an analysis of the economic impacts, valuation damage, and lost lease values due to riparian and operational setbacks. Please note that the RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8.

**Response to Comment BN-158**

The comment expresses concern that the Proposed Project would cause significant impacts related to agricultural land conversion due to the cost of compliance and economic infeasibility. The DEIR provided a detailed analysis of this issue in Section 3.5, *Economics*. Please also see Master Response 2.10.

The comment also states that riparian and operational setbacks will result in management costs that may have economic impacts. Please note that the RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8.

**Response to Comment BN-159**

The comment states that the lack of project alternatives and analysis of mitigation measures are improper. Please refer to Responses to Comments BN-220 to BN-238 for specific responses to the concerns presented in the commenter's later comments.

**Response to Comment BN-160**

The comment expresses concern that the analysis of impacts on agricultural resources is lacking because it does not analyze evidence provided by the public. Please refer to Responses to Comments BN-126 and BN-138 for specific responses to the concerns presented in this comment.

**Response to Comment BN-161**

The comment cites a January 21, 2019 letter from Costa Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-162**

The comment cites a January 15, 2019 letter from Costa Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-163**

The comment cites a January 21, 2019 letter from Huntington Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-164**

The comment cites a January 17, 2019 letter from Berry Mist Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-165**

The comment cites a January 21, 2019 letter from California Farm Bureau Federation to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-166**

The comment cites a January 15, 2019 letter from California Avocado Commission to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-167**

The comment cites a January 21, 2019 letter from University of California Cooperative Extension Monterey County to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-168**

The comment cites a January 21, 2019 letter from Grower-Shipper Association of Santa Barbara and San Luis Obispo Counties to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-169**

The comment cites a January 21, 2019 letter from Grower-Shipper Association of Central California, Grower-Shipper Association of Santa Barbara and San Luis Obispo Counties, Monterey County Farm Bureau, Central Coast Groundwater Coalition, Western Growers, and California Farm Bureau Federation on behalf of Monterey County Farm Bureau, San Benito County Farm Bureau, San Luis Obispo County Farm Bureau, San Mateo County Farm Bureau, Santa Barbara County Farm Bureau, Santa Clara County Farm Bureau, and Santa Cruz County Farm Bureau to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-170**

The comment cites an April 30, 2018 letter from Grower-Shipper SB SLO, Grower-Shipper CC, Western Growers, SLO Farm Bureau, California Strawberry Commission, and Central Coast Groundwater Coalition to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-171**

The comment expresses concern that the analysis of agricultural impacts in the DEIR ignores legislative declarations in CEQA. Please refer to Response to Comment BN-172 for a specific response to the concerns presented in this comment.

**Response to Comment BN-172**

The comment expresses concern that the DEIR ignores that agriculture is an environmental resource of the state that should be protected and enhanced. The DEIR complies with CEQA by providing a rigorous analysis of the potential environmental impacts of the Proposed Project, including the potential impacts of the Proposed Project on agricultural resources (*see* Section 3.1, *Agriculture and Forestry Resources).*

The comment also states that the DEIR should have recognized that Central Coast agriculture provides economic, environmental, and socio-cultural benefits, as well as food and fiber and included analysis of resulting impacts to these agricultural benefits. The comment does not

provide substantial evidence that such analysis would find new previously undisclosed significant impacts or substantially worse impacts than those disclosed in the DEIR. Please refer to Master Response 2.10.

**Response to Comment BN-173**

The comment argues that the DEIR should have included additional significance criteria in its evaluation of impacts of the Proposed Project on agricultural resources. The DEIR included analyses of the five significance criteria outlined in Appendix G of the CEQA Guidelines. The DEIR found that there would be significant and unavoidable impacts under two of those criteria due to the riparian and operational setback requirements included in the DAO 4.0 (note that the riparian and operational setback requirements have since been removed from the Proposed Project and thus significant and unavoidable impacts on agricultural resources would no longer occur, as described in Volume 1 of the FEIR). The comment does not identify any specific additional significance criteria that the commenter believes should have been included in the DEIR's analysis. Therefore, no further response is needed.

**Response to Comment BN-174**

The comment states that substantial evidence of impacts beyond those listed in Appendix G should have been analyzed within the DEIR. The comment does not identify any specific impacts that were not identified or analyzed in the DEIR and that should have been included in the CEQA analysis. Therefore, no further response is needed.

**Response to Comment BN-175**

The comment cites a January 21, 2019 letter from Costa Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-176**

The comment cites a January 15, 2019 letter from Costa Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

The comment also cites a January 21, 2019 letter from Huntington Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-177**

The comment cites a January 17, 2019 letter from Berry Mist Farms to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-178**

The comment cites a January 21, 2019 letter from California Farm Bureau Federation to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-179**

The comment expresses concern that the DEIR includes conclusory statements, and lists several examples of statements the commenter believes are conclusory. Each of the examples from the DEIR relate to the DEIR's findings that it would be speculative to determine the precise acreage that may be removed from production as a result of increased regulatory costs or from certain management practices. The DEIR provides substantial evidence regarding the anticipated costs of a range of management practices, as well as a detailed review of anticipated costs for regulatory compliance for growers that would be required to comply with Agricultural Order 4.0. (*See* DEIR pp. 3.5-13 to 3.5-30.) In addition, the DEIR presents detailed estimates of the typical acreage that would be impacted or utilized as a result of each specific management practice that a grower may choose to employ in order to achieve compliance with Agricultural Order 4.0. (*See* DEIR pp. 3.5-13 to 3.5-20.) The DEIR cannot, and does not, predict which management practices each grower that may be subject to the Order may choose to implement to achieve compliance goals. CEQA directs that lead agencies may not speculate about potential significant impacts. Please refer to Response to Comment BN-149. The DEIR's conclusions are supported by substantial evidence.

The comment also expresses concern that the DEIR ignores impacts, potential alternatives, and assumes only one approach is suitable for the regulation of agricultural discharges. The comment does not identify specific impacts to the environment that have not been analyzed in the DEIR. Please refer to Response to Comment BN-173. In response to the concern regarding the lack of alternatives, the DEIR presents a range of alternatives, including an alternative approach that was proposed by a group consisting of many of the same commenters. (See DEIR Chapter 4, *Alternatives Analysis*.) Please refer to Responses to Comments BN-227 to BN-238 for more specific response to the concerns presented in this comment.

The comment also asserts that the DEIR does not comply with CEQA because it does not analyze all evidence that provides fair argument of an impact. The standard for an Environmental Impact Report is substantial evidence. Substantial evidence includes facts, reasonable assumptions based on facts, and expert opinion supported by facts. Substantial evidence does not include argument, speculation, unsubstantiated opinion or narrative, evidence that is clearly erroneous or inaccurate, or evidence of social or economic impacts that do not contribute to or are not caused by physical impacts on the environment. (13 Pub. Res. Code § 21082.2.) The comment does not provide substantial evidence that the Proposed Project may have a significant impact on the environment that has not been already examined and disclosed in the DEIR.

**Response to Comment BN-180**

The comment cites a January 15, 2019 letter from California Avocado Commission to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-181**

The comment cites a January 21, 2019 letter from University of California Cooperative Extension Monterey County to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-182**

The comment cites a January 21, 2019 letter from Grower-Shipper Association of Santa Barbara and San Luis Obispo Counties to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-183**

The comment cites a January 21, 2019 letter from Grower-Shipper Association of Central California, Grower-Shipper Association of Santa Barbara and San Luis Obispo Counties, Monterey County Farm Bureau, Central Coast Groundwater Coalition, Western Growers, and California Farm Bureau Federation on behalf of Monterey County Farm Bureau, San Benito County Farm Bureau, San Luis Obispo County Farm Bureau, San Mateo County Farm Bureau, Santa Barbara County Farm Bureau, Santa Clara County Farm Bureau, and Santa Cruz County Farm Bureau to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-184**

The comment cites an April 30, 2018 letter from Grower-Shipper SB SLO, Grower-Shipper CC, Western Growers, SLO County Farm Bureau, California Strawberry Commission, and Central Coast Groundwater Coalition to the CCWB. The comment is noted. The comment does not provide substantial evidence that the Proposed Project would result in a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-185**

The comment states that the impact analysis for agriculture and forestry resources is limited to a little over eight pages. The comment is noted. CEQA does not require any specific page count or length of analysis, except to state that the text of EIRs should normally be less than 150 pages, or 300 pages if the project has unusual scope or complexity. (CEQA Guidelines § 15141.)

**Response to Comment BN-186**

The comment states that the statements referenced in Comment BN-179 do not provide a basis for comparison between the Proposed Project and the alternatives. Please refer to Response to Comment BN-179 for a more specific response to this comment. In addition, the comment states that CEQA requires discussion of probable impacts, project alternatives, mitigation measures, and the environmental consequences of each. Sections 3.1 through 3.12 contain discussions and analyses of probable impacts of each of the resource topics contained in Appendix G of the CEQA Guidelines, plus an additional analysis of the probable impacts to the environment as a result of economic factors (Section 3.5, *Economics*). Alternatives to the project

are discussed in detail in Chapter 4, *Alternatives Analysis*. The DEIR contains several mitigation measures, which are numbered and summarized in the Executive Summary. A full discussion of each mitigation measure is included in the chapter in which it is introduced, along with an analysis of how each mitigation measure will reduce potential impacts.

The comment states that each of these discussions must be supported by substantial evidence and allow for public participation and review. As described in Response to Comment BN-179 and BN-186, the discussions are supported by substantial evidence. DEIR Section 1.5, *Public Involvement Process*, describes the process of public participation and review for the DEIR. This included the preparation and circulation of a NOP, Initial Study, and a scoping notice, beginning February 16, 2018. Four scoping meetings were held in March 2018, in Salinas, Watsonville, Santa Maria, and San Luis Obispo. The DEIR includes a summary of comments received during the scoping period. Following the initial scoping comment period, the CCWB solicited public comment on conceptual regulatory requirement options (November 2018 – January 2019), and on updated option tables (March 2019 – May 2019). The DEIR was circulated for public review and comment from February 21, 2020, to June 22, 2020, a total of 122 days. The CEQA process for the Proposed Project has been consistent with all requirements related to public review and comment.

**Response to Comment BN-187**

The comment asserts that the DEIR did not sufficiently analyze the impacts of expanded requirements for irrigation and nutrient management for surface and groundwater because it did not evaluate economic impacts of these requirements. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the EIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-188**

The comment asserts that the DEIR does not adequately analyze certain impacts related to the proposed riparian and operational setback requirements, including issues related to food safety buffering, California Leafy Greens Product Handling Marketing Agreement, impacts of fallowing on small farming operations, food safety, flood, and insect vector control, Williamson Act contracts, County tax revenue, and land values. Please note that the RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8.

The comment expresses concern that the DEIR's analysis does not include SGMA, and associated requirements. Please refer to Response to Comment BN-109 for a specific response to this comment.

The comment expresses concern that the DEIR does not adequately analyze certain economic impacts of the Proposed Project, including costs of meeting requirements, multiplier effects on agricultural related businesses, or reductions in local employment. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-189**

The comment expresses concern that the statements referenced in Comment BN-179 do not provide a means for the public to assess project impacts and alternatives. Please refer to Responses to Comments BN-179 and BN-186 for more specific responses to this comment.

**Response to Comment BN-190**

The comment expresses concern regarding possible conflicts between the proposed riparian setback requirements and the California Leafy Greens Product Handling Marketing Agreement. Please note that the RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8.

**Response to Comment BN-191**

The comment expresses concern regarding possible conflicts between the proposed riparian and operational setback requirements and Williamson Act contracts. Please note that the RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8.

**Response to Comment BN-192**

The comment expresses concern that changes in crop mix as a result of fewer crop rotations per year may negatively impact employment. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the EIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-193**

The comment expresses concern that the DEIR does not properly quantify the impacts of operational and riparian setbacks on agricultural resources. Please note that the RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8.

**Response to Comment BN-194**

The comment expresses concern that the nitrogen discharge limits in Agricultural Order 4.0 will be cost prohibitive for certain crops. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the EIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-195**

The comment expresses concern regarding economic impacts of nitrogen discharge limits on lettuce in Monterey County, summarizing the results of the ERA Economics study, which is included in the comment letter package and delineated as Comments BN-368 to BN-415. In response to concerns related to potential adverse economic impacts from Agricultural Order

4.0, refer to Master Response 2.9. Please also refer to Master Response 2.10, which responds to comments on the DEIR's economic impacts analysis and addresses the ERA Economics study. Please also see Responses to Comments BN-368 to BN-415 for specific responses to the concerns presented in the commenter's later comments.

**Response to Comment BN-196**

The comment expresses concern regarding economic impacts of nitrogen discharge limits on lettuce in Monterey County, citing additional findings of the ERA Economics study. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. Please also refer to Master Response 2.10, which responds to comments on the DEIR's economic impacts analysis and addresses the ERA Economics study. Please also see Responses to Comments BN-368 to BN-415 for specific responses to the concerns presented in the commenter's later comments.

**Response to Comment BN-197**

The comment expresses concern that economic impacts from the Proposed Project will have a disproportionate impact on jobs for those who reside in economically disadvantaged communities and that this was not evaluated in the DEIR. The comment quotes a passage from the first ERA Economics technical memorandum, which is included in the comment letter package and delineated as Comments BN-288 to BN-367. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the EIR's approach for impact analysis, please refer to Master Response 2.10. Please also see Responses to Comments BN-288 to BN-367 for specific responses to the concerns presented in the commenter's later comments.

**Response to Comment BN-198**

The comment expresses concern regarding economic impacts of nitrogen discharge limits on lettuce in Monterey County, citing additional findings from the ERA Economics study (second ERA Economics technical memorandum). In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. Please also refer to Master Response 2.10, which responds to comments on the DEIR's economic impacts analysis and addresses the ERA Economics study. Please also see Responses to Comments BN-368 to BN-415 for specific responses to the concerns presented in the commenter's later comments.

**Response to Comment BN-199**

The comment expresses concern regarding economic impacts of nitrogen discharge limits on lettuce in Monterey County, citing additional findings from the ERA Economics study (second ERA Economics technical memorandum). In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. Please also see Master Response 2.10, which responds to comments on the DEIR's economic impacts analysis and addresses the ERA Economics study. Please also see Responses to Comments BN-368 to BN-415 for specific responses to the concerns presented in the commenter's later comments.

**Response to Comment BN-200**

The comment expresses concern regarding economic impacts of nitrogen discharge limits on lettuce in Monterey County, citing additional findings of the ERA Economics study (second ERA Economics technical memorandum). In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. Please also refer to Master Response 2.10, which responds to comments on the DEIR's economic impacts analysis and addresses the ERA Economics study. Please also see Responses to Comments BN-368 to BN-415 for specific responses to the concerns presented in the commenter's later comments.

**Response to Comment BN-201**

The comment expresses concern that the impacts described in comments BN-195 to BN-200 are not analyzed in the DEIR. As noted above, the assertions in Comments BN-195 to BN-200 are taken from the ERA Economics study (second ERA Economics technical memorandum), which is delineated as Comments BN-368 to BN-415. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the EIR's approach for impact analysis, please refer to Master Response 2.10. Please also see Responses to Comments BN-368 to BN-415 for specific responses to the concerns presented in the commenter's later comments.

**Response to Comment BN-202**

The comment states generally that the DEIR is conclusory and therefore precludes meaningful review and comment. Please refer to Responses to Comments BN-179 and BN-186 for more specific responses to this comment. The comment also states that the DEIR is flawed because it does not analyze impacts and concludes that certain impacts are speculative or less than significant. Please refer to Responses to Comments BN-179 and BN-188 for more specific responses to this comment.

**Response to Comment BN-203**

The comment expresses concern that the economic analysis in the DEIR is flawed because it does not evaluate how growers would adjust in response to increased regulatory costs. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the EIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-204**

The comment expresses concern that the significance criteria in the DEIR's analysis of economic impacts is flawed. The comment does not identify any specific additional significance criteria that the commenter believes should have been included in the DEIR's analysis. Therefore, no additional response is required.

The comment also expresses concern regarding the DEIR's findings that the "potential for agricultural lands to be converted to non-agricultural uses as a result of increased costs from Agricultural Order 4.0 is speculative." Please refer to Responses to Comments BN-149 and BN-179 for more specific responses to this comment.

The comment expresses concern that the DEIR includes conclusory statements, and lists several examples of statements from the DEIR it believes to be conclusory. Each of the examples from the DEIR relate to the DEIR's findings that it would be speculative to determine whether any particular grower may make management decisions that would result in agricultural land conversions as a result of increased regulatory costs. The DEIR provides substantial evidence regarding the anticipated costs of a range of management practices as well as a detailed review of anticipated costs for regulatory compliance for growers that would be required to comply with DAO 4.0. (DEIR, pp. 3.5-13 to 3.5-30.) In addition, the DEIR depicts agricultural land trends, which show that increased regulatory costs from previous CCWB Agricultural Orders have not had a direct correlation to agricultural land conversion. (DEIR, p. 3.1-15.) The DEIR cannot, and does not, predict which management practices each grower that may be subject to DAO 4.0 may choose to implement to achieve compliance goals, nor can the DEIR predict which and how many farms may cease operations due to increased regulatory costs. CEQA directs that lead agencies may not speculate about potential significant impacts. Please refer to Responses to Comments BN-149 and BN-179 regarding CEQA's prohibition on speculation.

The comment states that there is a well-established approach to quantify the economic impact of DAO 4.0. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

The comment also states that the CCWB should consider economics in its adoption of the Order. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9.

**Response to Comment BN-205**

The comment states that the DEIR cannot use the regulatory costs of Agricultural Order 3.0 as a basis for comparison for the Proposed Project. Please refer to responses BN-206 and BN-207 for specific responses to the concerns presented in the commenter's later comments.

**Response to Comment BN-206**

The comment expresses concern that the economic analysis discusses the changes in regulatory costs between Agricultural Order 3.0 and the Proposed Project over a five-year period. The comment argues that the assessment should consider cumulative regulatory costs. In response to concerns related to potential adverse economic impacts from DAO 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10. Please also refer to RAO 4.0, Attachment A, page 8, paragraph 20, which explains that the five-year project periods for estimating costs were necessary to account for the one-time costs and the phasing and prioritization approach taken under RAO 4.0.

**Response to Comment BN-207**

The comment states that previously considered costs from prior regulations are not directly relevant to an assessment of the Proposed Project's impacts because the Proposed Project includes new requirements. The comment also states that the DEIR's analysis does not evaluate how growers would adjust in response to increased regulatory costs. The comment also

expresses concern that the estimated regulatory compliance costs in the DEIR do not include other economic impacts of regulatory costs, and that the DEIR's analysis should have projected potential regulatory costs for a period longer than five years. In response to concerns related to potential adverse economic impacts from DAO 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10. Please also refer to RAO 4.0, Attachment A, page 8, paragraph 20, which explains the rationale for estimating costs over five-year periods. In general, the DEIR sought to define the increment of change in costs of compliance for growers under Agricultural Order 4.0 as compared to Agricultural Order 3.0 because CEQA requires that a lead agency evaluate potential environmental impacts relative to baseline (i.e., existing conditions).

**Response to Comment BN-208**

The comment states that the costs of nitrogen discharge requirements, compliance with surface water discharge limits, and compliance with riparian setback areas are not estimated in the DEIR. The DEIR provides substantial evidence regarding the anticipated costs of a range of management practices that may be used for compliance with nitrogen discharge and surface water discharge requirements. (DEIR, pp. 3.5-13 to 3.5-19.) Please note that the RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8.

The comment contains a list of factors the commenter believes should have been analyzed in the DEIR's economic analysis. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the EIR's approach for impact analysis, please refer to Master Response 2.10. The comment does not present substantial evidence that an examination of these factors would result in the determination of a new previously undisclosed significant impact or a substantially worse impact than that disclosed in the DEIR.

**Response to Comment BN-209**

The comment states that the Proposed Project would result in impacts to the farming environment and the socioeconomic environment. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-210**

The comment states that the cumulative impacts of regulatory costs should be considered in the DEIR. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10. For a discussion of cumulative impacts related to economics, see Table 5-3 in the DEIR. For discussion of the Hamilton and McCullough (2018) study, please also see Response to Comment BN-112.

**Response to Comment BN-211**

The comment requests that the DEIR be revised to quantify the effects of the Proposed Project on land retirement, land use change, and socioeconomic impacts. Please refer to Responses to

Comments BN-203 to BN-210 for specific responses to the concerns presented in the commenter's previous comments.

**Response to Comment BN-212**

The comment states that the DEIR does not contain analysis regarding the Proposed Project's inconsistency with adopted county general plans. The comment does not specify which plans are in conflict with the Proposed Project. The relevant threshold of significance asks whether the Proposed Project would conflict with zoning for agricultural use. The DEIR finds that riparian and operational setbacks would result in conflicts with zoning for agricultural use due to the potential for conversion of agricultural lands, and finds that impacts would be significant and unavoidable. The comment does not specify if the commenter believes that possible conflicts with general plans would be caused by the riparian and operational setback requirements, or some other aspect of the Proposed Project. Please note that the RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8.

In addition, the comment states that Appendix B to the DEIR, *County General Plan Goals and Policies*, is incomplete because it does not include all relevant county general plan policies and goals related to agricultural resources, land use, conservation, and economics. The comment does not specify any specific plan policies or goals that were omitted but that the commenter believes should have been included in the DEIR.

The comment also indicates that the DEIR's discussion of the potential conflicts between the Proposed Project and the Williamson Act is insufficient. However, the comment does not describe any aspects of the DEIR's analysis that may be incomplete.

The comment further states that the DEIR should contain an analysis of each agricultural related plan or policy that conflicts with the Proposed Project. As above, the comment does not specify whether the commenter believes conflicts would be caused by the riparian and operational setback requirements or another aspect of the Proposed Project.

The DEIR acknowledges the relevance and applicability of local plans and policies to the actions that private landowners within the boundaries governed by those local plans and policies may take in response to the DAO 4.0. But those local plans and policies do not supersede, control, or limit the scope of the CCWB's authority under the Porter-Cologne Act and other statewide water quality laws and regulations.

**Response to Comment BN-213**

The comment lists a series of county land use policies that prohibit land uses that interfere with agriculture or seek to conserve agricultural lands. Please refer to Response to Comment BN-212 for a more detailed response to this comment.

**Response to Comment BN-214**

The comment expresses concern that the Proposed Project conflicts with county general plans and goals. Please refer to Response to Comment BN-212. The comment requests that the DEIR be revised to present and analyze all applicable general plan policies and goals. Please refer to Response to Comment BN-212 for a more detailed response to this comment.

**Response to Comment BN-215**

The comment states that the DEIR should have fully analyzed impacts on Land Use and Planning and Population and Housing. Please refer to Responses to Comments BN-216 to BN-218 for specific responses to the concerns presented in the commenter's later comments.

**Response to Comment BN-216**

The comment states that the DEIR should have analyzed whether the Proposed Project would conflict with any applicable local land use plan, policy, or regulation. The DEIR noted that:

The potential for Agricultural Order 4.0 to conflict with any applicable habitat conservation plan or natural community is evaluated in Section 3.3, *Biological Resources.* Additionally, the potential for Agricultural Order 4.0 to conflict with existing zoning for agricultural uses is discussed in Section 3.1, *Agriculture and Forestry Resources.*

(DEIR, p. 3.0-4.) Please refer to Response to Comment BN-212 for a more detailed response to this comment.

**Response to Comment BN-217**

The comment describes CEQA requirements related to the analysis of growth-inducing features of a project. The comment is noted.

The comment states that the Proposed Project may have potential impacts on growth, as it may either induce growth by taking land out of production and converting it to urban uses, or may reduce growth by creating economic distress due to farms going out of business. CEQA only requires lead agencies to consider impacts that may induce growth or remove obstacles to growth; it does not require lead agencies to speculate about the complex economic factors that may affect any individual landowner to make decisions about whether to continue farming and the resulting impacts that may reduce or inhibit growth. (CEQA Guidelines § 15126.2(e).) The DEIR found that it would be speculative to determine whether farms may go out of business and lead to conversion of agricultural uses to urban uses. Additionally, note that the RAO 4.0 does not include the riparian and operational setback requirements. The comment does not provide substantial evidence that there would be growth inducing (or growth reducing) impacts as a result of the Proposed Project.

**Response to Comment BN-218**

The comment states that the Proposed Project could have a growth reducing impact because a reduction in productive acreage would have an impact on towns throughout the region, disproportionally impacting disadvantaged members of the community. Please refer to Response to Comment BN-217 for a response to this comment.

**Response to Comment BN-219**

The comment requests that the DEIR be revised to analyze the potential impacts of the Proposed Project on population and housing, and land use and planning. Please refer to Responses BN-216 to BN-218 for specific responses to the concerns presented in the commenter's previous comments.

**Response to Comment BN-220**

The comment states that the DEIR's evaluation of mitigation measures is inadequate and that certain required mitigation measures are improper. Please refer to Responses to Comments BN-221 to BN-225 for specific responses to the concerns presented in the commenter's later comments.

**Response to Comment BN-221**

The comment states that some of the mitigation measures in the DEIR are infeasible and exceed the CCWB's authority. The comment does not name the mitigation measures, but appears to identify the mitigation measures to which it objects in a citation. The mitigation measures cited appear to be:

- BIO-1: Avoid and Minimize Impacts on Sensitive Biological Resources
- HAZ-1: Hazardous Materials Spill Prevention, Control, and Counter-Measures for Land Disturbance Activities
- CUL-1: Cultural Resources Inventory, Evaluation of Resources for Significance, and Implementation of Avoidance and/or Minimization Measures
- CUL-3: Comply with State Laws Pertaining to the Discovery of Human Remains

The comment states that the DEIR is unclear about how these measures would be triggered and if the mitigation measures would apply to growers that chose to implement a management method for reasons independent of Agricultural Order 4.0.

The mitigation measures described in the DEIR would apply to actions and practices that are implemented to comply with DAO 4.0. In most cases, the mitigation measures described merely require compliance with existing state law and permitting requirements. Growers are required to comply with the state and federal Endangered Species Acts; nesting bird protections in the California Fish and Game Code; the California Native Plant Protection Act; the CDFW Lake and Streambed Alteration Program; California Health and Safety Code provisions related to hazardous materials and discovery of human remains; California Department of Pesticide Regulation requirements; and other local ordinances, regulations, and permitting programs. Construction of certain management practices that would involve ground disturbance, such as sediment basins or denitrifying bioreactors, often require permits and approvals from state and local agencies that would include conditions designed to avoid and minimize impacts on sensitive species, prevent hazardous materials spills, and protect cultural and historical resources.

CEQA gives a public agency the authority to require feasible changes in any or all activities involved in a project to substantially lessen or avoid significant effects on the environment. (CEQA Guidelines § 15041.) Like conclusions regarding significant impacts, findings of infeasibility must be supported by substantial evidence. (CEQA Guidelines § 15091(b).) The comment does not provide substantial evidence that the mitigation measures in the DEIR would be infeasible. Therefore, no further response is needed.

**Response to Comment BN-222**

The comment expresses concern regarding the CCWB's authority to impose mitigation measures related to the Proposed Project. Please refer to Response to Comment BN-221 for a response to this comment.

The comment states that the analysis of Impact BIO-3 discusses impacts to wetlands but does not mention farmlands that are statutorily exempt from regulation under the federal Clean Water Act. The comment does not explain the relevance of exemption from the federal Clean Water Act to the CCWB's authority to regulate waste discharges to waters of the State, nor does the comment provide substantial evidence that the exemption from the Clean Water Act would create a conflict with the mitigation measures in the DEIR, or would make any mitigation measures in the DEIR infeasible. Therefore, no further response is needed.

The comment states that there is no rational nexus between the mitigation measures in the DEIR and a legitimate governmental interest. The state and federal governments' interests in protecting water quality, protecting endangered species, preventing environmental contamination from hazardous substances, protecting cultural resources, protecting tribal cultural resources, and controlling noise impacts are well documented through the statutes and regulations governing such resources. Each of the mitigation measures in the DEIR is designed to further one of these interests. The comment does not present substantial evidence that any specific mitigation measure conflicts with this constitutional requirement. (CEQA Guidelines § 15126.4(a)(4)(A).) Therefore, no further response is needed.

The comment also states that the costs of implementing the mitigation measures are not roughly proportional to the impacts of the Proposed Project. As noted in comment BN-221, growers must already comply with many of the requirements set forth in the mitigation measures. The mitigation measures are designed to reduce adverse impacts as described in the DEIR. The comment does not introduce any substantial evidence that the mitigation measures are not proportional to the Proposed Project impacts. Therefore, no further response is needed.

The comment requests that the majority of mitigation measures be revised or deleted. Please refer to the discussion above.

**Response to Comment BN-223**

The comment states that the DEIR fails to properly identify mitigation measures for significant impacts, citing a measure that the CCWB found infeasible for mitigating impacts as a result of proposed setback requirements. Please note that RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8.

**Response to Comment BN-224**

The comment states that the Agricultural Organizations reserve the right to raise improper analysis and identification of additional mitigation measures in the future. The comment is noted but not conceded. CEQA provides that project opponents may not bring an action unless the alleged grounds for noncompliance were presented to the public agency orally or in writing during the public comment period provided under CEQA or before the close of the public hearing on the project. (Pub. Resources Code, §21177(a).)

**Response to Comment BN-225**

The comment states that it is improper to use a statewide figure to determine "farm real estate average value per acre" because the DEIR should have used figures specific to the Central Coast. Please refer to Response to Comment BN-223 for a more specific response to this comment.

**Response to Comment BN-226**

The comment requests that the DEIR be revised to include appropriate mitigation measures. Please refer to Responses to Comments BN-221 through BN-225 for specific responses to the concerns presented in the commenter's previous comments.

**Response to Comment BN-227**

The comment cites provisions of CEQA regarding the analysis of project alternatives. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-228**

The comment cites provisions of CEQA regarding the analysis of project alternatives. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-229**

The comment states that the DEIR does not produce any alternatives that would feasibly attain most of the Proposed Project's objectives. The DEIR analyzed three alternatives: the No Project Alternative, the Ag Organization Alternative, and the Environmental Advocate Alternative. Each of these alternatives were screened to determine economic feasibility, environmental feasibility, legal feasibility, social feasibility, and technical feasibility. The threshold for retaining an alternative for consideration in the DEIR is *potential* feasibility. (CEQA Guidelines § 15126.6(a).) In this regard, an alternative does not need to *definitely* be feasible in order to carry it forward for analysis. The approving body (in this case the CCWB) makes the final determination in its findings pursuant to CEQA as to whether a given alternative analyzed in the DEIR is actually feasible. The DEIR found that each of the three alternatives presented was potentially feasible. (*See* DEIR, pp. 4-4 to 4-7.)

**Response to Comment BN-230**

The comment expresses concern that the Ag Organization Alternative was based on comments submitted by a group of agricultural organizations regarding a conceptual draft of Agricultural Order 4.0. The comment appears to argue that because the version of the draft order upon which the comments were based was not finalized, the Ag Organization Alternative cannot be used.

Once an alternative is selected, CEQA requires that the EIR:

> [i]nclude sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major

> characteristics and significant environmental effects of each alternative may be used to summarize the comparison.

(CEQA Guidelines § 15126.6(d).) The DEIR describes the Ag Organization Alternative in significant detail, describing the alternative's approach to regulation of surface water, groundwater, sediment and erosion, riparian, education and outreach, and groundwater trend monitoring. (DEIR, pp. 4-12 to 4-16.) The DEIR also includes a table, comparing the Proposed Project to the Ag Organization Alternative. (DEIR, pp. 4-17 to 4-18.)

The comment does not identify any specific provisions described in the Ag Organization Alternative that would have been different if considered in the context of the version of the DAO 4.0 upon which the EIR was based. The comment does not produce substantial evidence that the selection or analysis of the Ag Organization Alternative was insufficient.

**Response to Comment BN-231**

The comment states that the conceptual tables on which the Ag Organization Alternative comments were based did not contain a monitoring and reporting plan. Please refer to Response to Comment BN-230 for a response to this comment.

**Response to Comment BN-232**

The comment cites a provision of the conceptual DAO 4.0 on which the Ag Organization Alternative comments were based to indicate that certain details were not included. Please refer to Response to Comment BN-230 for a response to this comment.

**Response to Comment BN-233**

The comment states that the DEIR's selection of alternatives was flawed because it did not create alternatives other than those suggested by other parties. CEQA does not require lead agencies to develop any particular number of alternatives, nor does it require lead agencies to identify alternatives that were not suggested as part of the scoping process. Rather, it suggests that lead agencies consider alternatives developed during the scoping process as potential alternatives. (CEQA Guidelines § 15126.6(c).) CEQA makes clear that "an EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation." (CEQA Guidelines § 15126.6(a).) The DEIR presents a range of alternatives, including those suggested by agricultural organizations and environmental advocates.

**Response to Comment BN-234**

The comment asserts that the DEIR dismissed the Ag Organization Alternative because it did not provide a specific, defined time schedule for compliance and the CCWB did not contact the Ag Organizations to define a time schedule (Objective 2). The alternative was not dismissed only because of the time schedule, however. The DEIR also found that the Ag Organization Alternative would not be as effective at achieving Objectives 1 and 3. The DEIR found:

- In general, CCWB staff question whether the Ag Organization Alternative would have a "high likelihood of success" in reducing discharges from irrigated agriculture such that

they are no longer causing or contributing to exceedances of WQOs or impairment of beneficial uses. (DEIR, pp. 4-18 to 4-19.)

- [The Ag Organization Alternative] would use an iterative management practice implementation and assessment approach that is similar to the approach that was previously rejected by the court. (DEIR, p. 4-20.)

- CCWB staff also question whether the Ag Organization Alternative would have a high likelihood of success in terms of achieving the needed pollutant discharge reductions. (DEIR, p. 4-20.)

- At the least, CCWB staff believe that the Proposed Project would have a greater probability of success in achieving nitrogen discharge reductions (based on the numeric discharge and application limits and defined time schedules), which, over time, would be more likely to improve existing water quality impairments for drinking water and avoid future increasing impacts, thus furthering water quality and social policy goals. (DEIR, p. 4-20.)

- All of this is in the context of existing conditions of streams and waterbodies in agricultural areas of the central coast region being unacceptable to the CCWB in terms of not currently achieving water quality objectives and protecting beneficial uses in many waterbodies in the central coast region. (DEIR, p. 4-21.)

Most importantly, the DEIR did not find the Ag Organization Alternative inadequate and carried it forward for full analysis. Based on all of the relevant considerations, the DEIR found that the Ag Organization Alternative would be less effective in accomplishing the water quality goals of the CCWB, while minimizing environmental impacts to the extent possible, as compared to the Proposed Project. Since publication of the DEIR, the CCWB has made changes to the Proposed Project (see RAO 4.0), including incorporating many of the suggestions of the agricultural community.

**Response to Comment BN-235**

The comment expresses concern that the DEIR dismissed the Ag Organization Alternative because it did not provide specific metrics and education programs and the CCWB did not contact the Ag Organizations to develop these items. Please refer to Response to Comment BN-234 for a response to this comment.

**Response to Comment BN-236**

The comment expresses concern that the CCWB continued developing its DAO 4.0 following its solicitation of public comment, but did not allow additional written comments or submission of alternatives following the Ag Organizations' January 21, 2019 submission. The CCWB has offered multiple opportunities for public input and comment, including all public comment and review periods required by CEQA. Please refer to Response to Comment BN-186 for a discussion of public input and comment.

**Response to Comment BN-237**

The comment expresses concern that the alternatives analysis in the DEIR was improper because the CCWB did not identify potentially significant impacts of the Proposed Project prior to the Ag Organizations' and the Environmental Advocates' opportunity to propose alternatives as part of the scoping process. "The purpose of an environmental impact report is *to identify the significant effects on the environment of a project*, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided." (13 Pub. Res. Code § 21002.1(a), *emphasis added*.) The CCWB could not have identified every potentially significant impact of the Proposed Project for the benefit of the Ag Organizations or the Environmental Advocates prior to the preparation and circulation of the DEIR. The DEIR was prepared for the purpose of identifying significant impacts, identifying potential alternatives, and indicating the manner in which significant impacts may be mitigated or avoided.

In addition, the CCWB prepared an Initial Study for the Proposed Project, which was published on February 16, 2018. (CCWB 2018.) While the Initial Study did not contain a complete analysis of potentially significant impacts that may result from the Proposed Project, it did identify potentially significant impacts in biological resources, agriculture and forestry resources, and mandatory findings of significance. Because the Initial Study found these potentially significant impacts, the CCWB made a decision to prepare an EIR to study all potentially significant impacts of the Proposed Project.

In addition, the comment states that the DEIR did not evaluate whether the alternatives were evaluated to reduce any significant impact to the maximum extent feasible. CEQA requires that the EIR "include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project." (CEQA Guidelines § 15126.6(d).) For each alternative, the DEIR's alternatives analysis provides a detailed description of the alternative, conducts a screening analysis for consistency with project objectives and feasibility, and the potential to eliminate one or more significant environmental impacts. Then, it conducts an impacts analysis for each resource topic that is evaluated in the EIR to determine how the alternative would compare to the Proposed Project in contributing to or reducing potentially significant impacts. (DEIR Chapter 4, *Alternatives Analysis*.) The DEIR's alternatives analysis complies with CEQA by providing an analysis of the potentially significant impacts that may result from each alternative.

**Response to Comment BN-238**

The comment expresses concern that the DEIR did not include a reasonable range of alternatives. Please refer to Reponses to Comments BN-233 to BN-237 for specific responses to the concerns presented in the commenter's previous comments.

**Response to Comment BN-239**

The comment cites provisions of CEQA regarding the analysis of cumulative impacts. The comment is noted.

In addition, the comment expresses concern that the DEIR does not analyze the cumulative impacts of the loss of agricultural lands statewide. CEQA does not necessarily require that a cumulative impacts analysis examine cumulative impacts of a project on a statewide basis. The CEQA Guidelines state that "[l]ead agencies should define the geographic scope of the area

affected by the cumulative effect and provide a reasonable explanation for the geographic limitation used." (CEQA Guidelines § 15130(b)(3).) The DEIR explains that because the scope of DAO 4.0 activities would be limited to small geographic areas on irrigated agricultural land, the overall geographic scope consists of the agricultural lands within the CCWB's jurisdiction. (DEIR, p. 5-10.) The geographic scope of the cumulative impacts analysis includes irrigated agricultural land in the following counties: San Mateo, Santa Clara, Santa Cruz, San Benito, Monterey, San Luis Obispo, Santa Barbara, Ventura, and Kern. (DEIR, p. 5-10.) The DEIR describes related projects within that geographic scope and provides an analysis of possible cumulative impacts. (DEIR, pp. 5-3 to 5-14.)

**Response to Comment BN-240**

The comment expresses concern that the DEIR does not identify all projects or programs adequately similar in nature, location, and type to result in a meaningful comparative analysis. The comment cites several agricultural and environmental regulations as examples of programs that should be included in the cumulative impact analysis. However, CEQA requires only an analysis of past, present, and future "projects" that would result in physical changes in the environment (e.g., new activity or recent past activity). Under CEQA, existing or potentially applicable regulations would not constitute a "project." Rather, the laws and regulations cited in the comment generally restrict or govern how existing and proposed projects operate or are constructed. Additionally, applicable related projects are noted in Table 5-1 of the DEIR (DEIR, p. 5-3).

In addition, the comment states that the DEIR should discuss reasonably anticipated future projects as part of its cumulative impact analysis. The comment does not identify any specific future projects that should be considered as part of the cumulative impact analysis.

**Response to Comment BN-241**

The comment expresses concern that the DEIR does not consider the cumulative effects of the Sustainable Groundwater Management Act (SGMA). Please refer to Response to Comment BN-240 for a response to this comment.

**Response to Comment BN-242**

The comment states that the DEIR should discuss reasonably anticipated future projects as part of its cumulative impact analysis. Please refer to Response to Comment BN-240 for a response to this comment.

**Response to Comment BN-243**

The comment states that the CCWB has participated in aspects of SGMA implementation and should have considered the impacts of SGMA in its cumulative analysis. Please see Response to Comment BN-240 for a response to this comment.

**Response to Comment BN-244**

The comment expresses concern that the DEIR should have considered social and economic impacts in its cumulative impact analysis. As support for the comment, the commenter quotes text from an outdated version of the CEQA Guidelines (discussion following Cal. Code Regs., tit. 14, § 15382) that does not appear in the regulations in their current form. Moreover, no part of

Public Resources Code Section 21083 mandates that an agency must treat all economic and social effects as significant adverse effects on people under CEQA. CEQA Guidelines section 15382 states that an "economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant." CEQA Guidelines 15131 states that "economic or social effects of a project shall not be treated as significant effects on the environment." The comment does not provide substantial evidence that such analysis would produce a physical change in the environment beyond the impacts already identified and disclosed in the DEIR and thus that the DEIR would find new previously undisclosed significant impacts or substantially worse impacts. Please refer to Master Response 2.10.

The comment requests that the DEIR be revised to evaluate the social and economic impacts from the Proposed Project. See discussion above.

**Response to Comment BN-245**

The comment generally alleges that the DEIR does not include important information and requests that the DEIR be revised and recirculated. Please see Responses to Comments BN-83 to BN-244 for specific responses to the concerns presented in the commenter's previous comments.

**Response to Comment BN-246**

The comment cites provisions of CEQA regarding significant new information. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-247**

The comment cites some of the purposes of CEQA. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-248**

The comment generally alleges that the DEIR violates CEQA and requests that the DEIR be revised and recirculated. Please see Responses to Comments BN-83 to BN-244 for specific responses to the concerns presented in the commenter's previous comments.

**Response to Comment BN-249**

The CCWB acknowledges the commenter's input and concerns.

**Response to Comment BN-250**

Comment noted.

**Response to Comment BN-251**

Comment noted.

**Response to Comment BN-252**

This comment is summarized and responded to in Master Response 2.2.4.

**Response to Comment BN-253**

The CCWB acknowledges the commenter's input.

**Response to Comment BN-254**

The comment states that revisions to Part 2, Section C.1 are necessary for the Order to properly reflect the State Water Board's precedential provisions in the ESJ Order. The commenter requests that the Order allow a third-party group to submit INMP and INMP Summary Report templates to the Executive Officer for approval. The commenter also proposes that instead of nitrogen application and discharge limits, that the Order establish ranges of targets for identifying outliers, after sound crop conversion coefficients, which are not yet available for many Central Coast crops, are developed.

In response to comments, a third-party alternative compliance pathway for groundwater protection and trend monitoring has been added to a revised Part 2, Section C.2 of the Agricultural Order 4.0. The ESJ Order allows a third-party group to propose INMP and INMP Summary Report templates to the regional board for approval, but this is not a precedential requirement and the CCWB does not use that approach in this Order. The CCWB requires that all Dischargers report INMP information using the same INMP Summary Report template so that reporting is consistent. Consistent reporting of individual discharger and third-party program discharger data (e.g., total nitrogen applied and total nitrogen removed) is necessary to determine individual progress towards compliance with fertilizer application targets/limits and nitrogen discharge targets/limits. Since 2014, Dischargers have reported total nitrogen applied (TNA) information by using a TNA Report template provided by the CCWB. This TNA Report has been available in GeoTracker since 2019 for Dischargers report their TNA information electronically. This electronic reporting capability is a time and resource savings for Dischargers and staff. Staff will expand the TNA Report to include sections for total nitrogen removed information after the Order is adopted.

Participants in the third-party alternative compliance pathway for groundwater protection and trend monitoring are not subject to fertilizer nitrogen application limits or nitrogen discharge limits. Participants are subject to targets and are generally provided more time to achieve fertilizer nitrogen application targets and nitrogen discharge targets, relative to non-participating dischargers. The CCWB is appropriately developing and using crop coefficients for conversion of yield to nitrogen removed values. Under the ESJ Order, the timeline for developing the coefficients is discretionary, and Agricultural Order 4.0 allows Dischargers to select from a list of approved conversion coefficients developed by the CCWB or to determine the Dischargers' own operation-specific coefficients.

**Response to Comment BN-255 through BN-258**

Refer to Response to Comment BN-254.

**Response to Comment BN-259**

This comment is summarized and responded to in Master Response 2.1.8.

**Response to Comment BN-260 through BN-261**

This comment is summarized and responded to in Master Response 2.3.1.

**Response to Comment BN-262**

The comment states that the Order's nitrogen discharge targets and limits are inconsistent with the ESJ Order's requirements related to Groundwater Protection Formula, Values and Targets. The comment also states that the Order should allow Dischargers the option of developing their own Groundwater Protection Formula, Values and Targets cooperatively through an approved third party.

RAO 4.0 was revised in response to this comment and other comments proposing an alternative to nitrogen discharge targets and limits. Specifically, RAO 4.0, incorporates a Third-Party Alternative Compliance Pathway for Groundwater Protection that requires the development of Groundwater Protection Formulas, Values, and Targets, consistent with the direction in the State Water Board's ESJ Order. Dischargers participating in the Third-Party Alternative will be subject to the Groundwater Protection Targets and not the nitrogen discharge limits once the Groundwater Protection Targets have been established.

For individual dischargers who opt not to participate in the Third-Party Alternative, RAO 4.0 continues to require compliance with nitrogen discharge targets and limits. While the State Water Board's ESJ Order contemplated that a Groundwater Protection Target would be applied in aggregate at a township level, it stated that the regional water boards could apply a "similar methodology," designed to determine targets for nitrogen loading within high priority townships or other geographic areas. Setting A-R values as Groundwater Protection Targets at the ranch level for individual dischargers not participating in the Third-Party Alternative constitutes an equally effective approach to achieving the purpose of targets, i.e., facilitating dischargers to collectively achieve compliance with the drinking water standard in their groundwater basin or sub-basin area. Moreover, it constitutes a practical approach that ensures that an individual ranch is not contributing to an exceedance of a Groundwater Protection Target applicable to a geographic area, without requiring significant regional board staff time to adjust and interpret collective targets in these areas if some ranches have opted not to participate in the Third-Party Alternative.

See also RAO 4.0, Attachment A, Findings, at pages 68 and 69, paragraph 208. In addition, this comment is summarized and responded to in Master Response 2.3.3.

**Response to Comment BN-263**

This comment is summarized and responded to in Master Response 2.1.8.

**Response to Comment BN-264**

Comment noted.

**Response to Comment BN-265**

This comment is summarized and responded to in Master Response 2.2.3.

**Response to Comment BN-266**

The comment requests deletion of the reference to "discharge volumes" in paragraph 28 of the commenter's redline/strikeout version of the Draft Order because the recording of "discharge volumes" is inconsistent with the ESJ Order and is also a difficult to quantify. The requirement to report the irrigation water discharge volume in the INMP Summary Report is not inconsistent with the ESJ Order, which is silent on this issue. Moreover, although the Central Valley Water Board permit as amended by the State Board does not include discharge volumes on its list of information that Dischargers must record in the INMP or INMP Summary Report, the lack of reference to the specific information does not make the omission precedential. The discharge volume information requested in this Order is similar to an existing requirement in the Annual Compliance Form to estimate the total number of days per year when tile drain water leaves the ranch/farm at any location. Attachment A, Findings, at page 13, paragraph 37 discusses the INMP Summary Report and explain that the amount of irrigation water discharged to surface water and groundwater will be calculated based on the information that Dischargers input into the INMP Summary report form (irrigation water applied minus evapotranspiration). No changes are made to the Order. The MRP, Attachment C at page 12, paragraph 17.b.i., is revised to read:

b. Irrigation discharge to surface water.

i. Dischargers must estimate and report the volume of water discharged through surface outflows, including tile drains.

**Response to Comment BN-267**

This comment is summarized and responded to in Master Response 2.4.4.

**Response to Comment BN-268**

Comment noted.

**Response to Comment BN-269**

The comment states that ranch-level groundwater discharge monitoring and reporting is inconsistent with the ESJ Order, that there is little value or benefit in ranch-level monitoring of groundwater discharges, and it is unknown how a discharger would accomplish this task as proposed. The comment also states that monitoring associated with pesticides is inconsistent with the ESJ Order. Also, the Department of Pesticide Regulation has a fairly robust groundwater monitoring program and it is not necessary to require it here.

In response to this comment and related comments, the ranch-level groundwater discharge monitoring and reporting requirements of the DAO 4.0 were significantly revised in RAO 4.0. Specifically, and as discussed in Master Response 2.4.2, the revisions clarify that the Executive Officer may require ranch-level groundwater monitoring as a consequence of "significant and repeated" exceedances of the nitrogen discharge targets or limits. Further, the revisions provide that the Central Coast Water Board staff will inform the Discharger and/or the third party representing the Discharger 90 days before the Executive Officer intends to require ranch-level discharge monitoring. The revisions specifically state that "the purpose of this advance notice is to provide flexibility to Dischargers in the event that circumstances beyond their control have adversely impacted the ability to achieve discharge targets/limits by prescribed timeframes."

With these revisions, imposition of ranch-level groundwater discharge monitoring and reporting requirements are reserved for situations where a discharger repeatedly and significantly exceeds applicable targets and limits, and exceedances are due to circumstances under the Discharger's control. The imposed ranch-level groundwater monitoring and reporting requirements will allow the Central Coast Water Board to determine the potential water quality impact of the violations on the groundwater underlying the facility and formulate an appropriate remedy to address the ranch's contribution to exceedances. There are existing technologies, such as soil profile analysis, use of lysimeters, or the sampling of shallow groundwater, that can yield data responsive to the discharge of waste from a ranch.

The requirement for ranch-level groundwater discharge monitoring and reporting is not inconsistent with the direction in the ESJ Order. The ESJ Order acknowledges that tools such as soil profile analysis and monitoring first-encountered groundwater may be costly and are useful only in a limited set of circumstances. The ESJ Order finds that the multiyear A/R and A-R data provides a more reliable and appropriate metric for determining a ranch's progress toward reducing the potential for nitrogen loss to groundwater. RAO 4.0 accordingly limits the imposition of ranch-level groundwater discharge monitoring only to circumstances where the Board cannot rely on nitrogen discharge targets and limits to evaluate the potential impact of the ranch's discharges on groundwater quality because the discharger is significantly and repeatedly exceeding such targets and limits.

The ranch-level groundwater discharge monitoring and reporting in RAO 4.0 is specific to nitrogen. Commenters' assertion with regard to ranch-level groundwater discharge monitoring and reporting for pesticides is not relevant to the revised requirement.

See also Master Responses 2.3.9; 2.4.2; 2.5.3; 2.5.5; 2.5.11; 2.6.6; and 2.7.3.

**Response to Comment BN-270**

Comment noted.

**Response to Comment BN-271 through BN-282**

This comment is summarized and responded to in Master Response 2.4.1.

**Response to Comment BN-283 through BN-285**

This comment is responded to in Master Response 2.8.8.

**Response to Comment BN-286**

This comment is summarized and responded to in Master Response 2.4.1.

**Response to Comment BN-287**

This comment is summarized and responded to in Master Response 2.9.4.

**Response to Comment BN-288**

The comment summarizes the purpose of the Technical Memorandum prepared by ERA Economics, which is included as Comments BN-288 through BN-367. The comment is noted. It

does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-289**

The comment expresses concern that the DEIR's economic analysis did not quantify certain economic impacts of the Proposed Project. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the EIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-290**

The comment expresses concern that the environmental setting in the DEIR is not accurate because it does not discuss "economic factors that affect planting decisions, land retirement, and jobs, and income opportunities for communities in the region, especially disadvantaged communities." In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-291**

The comment expresses concern that the costs of implementing the Proposed Project are not adequately assessed. In particular, the comment states that costs associated with riparian and operational setbacks can be quantified more accurately. The comment concludes that the DEIR does not adequately analyze impacts on employment and income, especially in disadvantaged communities. Please note that the RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-292**

The comment expresses concern that the DEIR does not evaluate the economic impacts of the Proposed Project on jobs, land use, and agricultural resources. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-293**

The comment expresses an opinion that the economic impacts of the Proposed Project will lead to other significant impacts. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-294**

The comment expresses concern that the DEIR does not estimate costs of nitrogen discharge requirements, compliance with surface water discharge limits, or riparian and operational setback areas. Please note that the RAO 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10. Please also see Master Response 2.9.1.

**Response to Comment BN-295**

The comment expresses concern that the economic analysis in the DEIR does not provide an analysis of changes in agricultural land use, socioeconomic effects, and potential impacts to linked industries and local communities. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-296**

The comment expresses concern that the DEIR's economic analysis provides a crop production budget for only one example crop. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-297**

The comment expresses an opinion that the DEIR should include an economic analysis that accounts for risk in addition to static operating costs and evaluates the effects of implementation costs on aggregate industry supply. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-298**

The comment states that the CCWB and the DEIR should use a calibrated economic model of Central Valley agriculture plus a linked input-output model to calculate the direct, indirect, and induced regulatory costs in the economic analyses of Agricultural Order 4.0. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-299**

The comment expresses concern that the DEIR did not examine whether economic impacts from the Proposed Project will have a disproportionate impact on jobs performed by people that reside in economically disadvantaged communities. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-300**

The comment states that economic impacts caused by changes in crop mix will have a disproportionate impact on jobs performed by people that reside in economically disadvantaged communities. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-301**

The comment states that effects of the Proposed Project on jobs can be calculated using standard economic models. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-302**

This comment is summarized and responded to in the following Master Responses: 2.9.1 and 2.9.2.

**Response to Comment BN-303**

This comment is summarized and responded to in Master Response 2.9.1. Also see DEIR Attachment A, Findings, at page 9, paragraph 25.

**Response to Comment BN-304**

The comment expresses concern that the estimate of opportunity cost of management time in Appendix A and the DEIR is too low. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-305**

The comment states that the Central Valley Water Board (CVWB) developed an economic impact analysis for the Central Valley that was available to the CCWB. This comment is summarized and responded to in Master Response 2.9.1.

**Response to Comment BN-306**

The comment describes the economic impact analysis that was created by the CVWB. This comment is summarized and responded to in Master Response 2.9.1.

**Response to Comment BN-307**

The comment states that the CVWB analysis shows that there are methods available for quantifying economic impacts. In response to concerns related to potential adverse economic

impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-308**

The comment states that the implementation costs in the economic analysis were not incorporated into a meaningful analysis. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-309**

The comment describes the economic impact analysis that was created by the CVWB. This comment is summarized and responded to in Master Response 2.9.1.

**Response to Comment BN-310**

The comment states that there is a well-established approach to quantify the economic impact of the Proposed Project. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-311**

The comment quotes a statement from the DEIR. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-312**

The comment states that the purpose of an economic impact analysis is to establish likely impacts, disclose impacts, and inform development of regulations based on those impacts. In addition, the comment states that the California Water Code mandates that the CCWB consider economics in adopting the Order. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-313**

The comment provides a link to the draft economic impact analysis that was created by the CVWB. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-314**

The comment states that the economic analysis should consider whether nitrogen discharge limits make it infeasible to rotate multiple crops per year. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9.

In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-315**

The comment states that cost increases affect supply for agricultural products on the Central Cost, which can impact profitability, land use, and employment. In addition, the comment stats that the economic analysis should evaluate effects on farming risk and competitiveness of Central Coast industries. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-316**

The comment disagrees with the conclusion in the DEIR that the effects of implementation costs are speculative. The comment cites agencies that have prepared economic frameworks. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-317**

The comment states that a standard economic impact analysis approach can be developed to address issues raised in the comment letter. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-318**

The comment outlines a standard impact analysis that the commenter requests be used by the CCWB and the DEIR. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-319**

The comment states that the economic impacts of the Proposed Project are likely to result in policy implications. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-320**

The comment states that regulatory costs can impact the competitiveness of the California agriculture industry. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-321**

The comment states that impacts disproportionately fall on disadvantaged communities. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-322**

The comment states that the economic impacts analysis should consider cumulative regulatory costs. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-323**

The comment describes requirements in the Proposed Project and states that the economic impacts of the costs of the requirements were not quantified in the DEIR. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-324**

The comment states that the DEIR des not develop an economic analysis to evaluate how Central Coast agriculture would respond to the costs imposed by the Proposed Project, and associated potential land use and job impacts. The comment also suggests an environmental justice impact be included in the DEIR. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10. In response to concerns related to environmental justice and impacts on disadvantaged farmers, refer to Master Response 2.1.13.

**Response to Comment BN-325**

The comment states that the DEIR's trend analysis of changes in agricultural lands as a result of prior agricultural orders is inadequate because the Proposed Project is different from previous

orders. The comment does not provide substantial evidence that the differences between the Proposed Project and previous agricultural orders would result in a new significant impact.

**Response to Comment BN-326**

The comment expresses concern that the DEIR found that the costs of management practices under Agricultural Order 4.0 were speculative. The comment states that there are methods available to quantify economic impacts. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-327**

The comment states that the DEIR's finding of less-than-significant impacts related to land conversion is not supported by the DEIR's analysis. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-328**

The comment provides references for Comment BN-325. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-329**

The comment states that the DEIR fails to describe the environmental setting for its economic analysis and did not adequately analyze the significance criteria in DEIR Section 3.5, *Economics*. Please refer to Responses to Comments BN-330 to BN-350.

**Response to Comment BN-330**

The comment states that the environmental setting in the DEIR is partially based on old data and does not describe features of Central Coast agriculture that are relevant for assessing economic impacts. Please refer to Response to Comment BN-331.

**Response to Comment BN-331**

The comment provides data indicating that that the gross value of fruit and vegetable production has increased since the 2009 study that was referenced in the DEIR. The comment does not provide substantial evidence that the difference in overall crop value in Monterey, Santa Barbara, and Santa Cruz counties would lead to a finding of a new significant impact.

**Response to Comment BN-332**

The comment states that the DEIR's use of a single crop to illustrate production costs is misleading. Please refer to Responses to Comments BN-333 to BN-337.

**Response to Comment BN-333**

The comment states that the example used in the DEIR, romaine hearts, is not representative of the mix of crops produced on the Central Coast. The DEIR does not state or imply that the costs and returns for other crops would mirror the data produced in the DEIR. The DEIR states that the analysis of romaine crops is "not necessarily representative of the costs of production for all commodities/crops," rather it is provided to "provide a sense of the costs that growers in the central coast region must bear and the returns that may be expected, depending on market conditions." (DEIR, p. 3.5-4.) In addition, the DEIR describes a similar study that analyzed production costs for strawberries on the central coast and compares its findings with the data regarding romaine hearts. (DEIR, p. 3.5-8.) Also, the DEIR provides data for average annual regulatory costs for a variety of crops, including grapes, tree nuts, and tomatoes. (DEIR, p. 3.5-9.)

**Response to Comment BN-334**

The comment states that the summary of the production budget for a single crop does not take into account crop rotations on the Central Coast. The comment states that some requirements in the Proposed Project "could make it impossible to produce multiple crops per year." The comment does not provide substantial evidence that the Proposed Project would prevent growers from producing multiple crops. The comment does not provide substantial evidence of a new significant impact.

**Response to Comment BN-335**

The comment states that an economic analysis that accounts for the industry supply curve and grower risk preferences should be used. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10. In addition, please refer to Responses to Comments BN-333 to BN-334.

**Response to Comment BN-336**

The comment states that the example production budget referred to in the DEIR does not describe crop mix, crop rotations, fertilizer, and soil amendments. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10. In addition, please refer to Responses to Comments BN-333 to BN-334.

**Response to Comment BN-337**

The comment expresses concern that the DEIR's analysis of economic impacts does not describe markets, competition, risk, or related economic factors. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact

analysis, please refer to Master Response 2.10. In addition, please refer to Responses to Comments BN-333 to BN-334.

**Response to Comment BN-338**

The comment states that the studies illustrating regulatory costs in the DEIR are inaccurate or misleading. Please refer to Responses to Comments BN-339 to BN-341.

**Response to Comment BN-339**

The comment expresses concern that the studies used to analyze regulatory costs in the DEIR do not estimate the economic effect of increasing regulatory costs on Central Coast agriculture. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-340**

The comment cites a study by Hamilton and McCullough that examined changing regulatory costs over time. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-341**

The comment states that the DEIR misrepresents a study that the DEIR uses to illustrate costs of regulatory compliance because the study illustrates that changes in regulatory costs have economic impacts that affect the physical environment. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-342**

The comment expresses concern that the Proposed Project and the DEIR do not include certain categories of compliance costs. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-343**

The comment expresses concern that the DEIR does not assess changes in crop mix, land retirement, and regional socioeconomic impacts to jobs, income, and the local economy. The DEIR discusses land retirement in Section 3.1, *Agriculture and Forestry Resources*, and in Section 3.5, *Economics*. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-344**

The comment states that economic models exist that could evaluate impacts to Central Coast growers and the physical environment. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-345**

The comment expresses concern that the DEIR does not address the question of whether the Proposed Project would increase regulatory costs to such a degree that it would cause or result in growers going out of business. The comment states that there is a potential that growers would not be able to double crop. The comment does not provide substantial evidence that the Proposed Project would prevent growers from producing multiple crops, nor does it provide substantial evidence that increased regulatory costs would produce a significant impact. The comment does not provide substantial evidence of a new significant impact. Please refer also to Master Response 2.10.

**Response to Comment BN-346**

The comment states that the DEIR does not estimate costs that are known or can be estimated. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-347**

The comment states that there is a method to translate regulatory costs to economic impacts and changes in the physical environment. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-348**

The comment expresses an opinion that the Proposed Project will likely disproportionately affect small farms and ranches. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-349**

The comment expresses an opinion that the Proposed Project will likely result in employment and income impacts that are likely to fall disproportionately on disadvantaged communities. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the EIR's approach for impact analysis, please refer to Master Response 2.10. In response to concerns related to impacts on disadvantaged farmers, refer to Master Response 2.1.13.

**Response to Comment BN-350**

The comment states that the CCWB has not analyzed nitrogen fertilizer applications, which would have impacts on yield, crop mix, crop rotation, and land retirement. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-351**

The comment describes the CVWB Irrigated Lands Regulatory Program. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-352**

The comment describes the CVWB Irrigated Lands Regulatory Program. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-353**

The comment describes the economic analysis performed for the CVWB Irrigated Lands Regulatory Program. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-354**

The comment states that the DEIR summarizes example costs for compliance but does not estimate the cost of meeting the Proposed Project requirements. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-355**

The comment lists a number of state and federal projects that have employed the economic model suggested by the commenter. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-356**

The comment states that the commenter has not reviewed the summaries of management costs provided in DEIR Table 3.5-9. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-357**

The comment states that the list of projects provided in Comment BN-355 is not exhaustive and is based on the commenter's personal recollections. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-358**

The comment states that the CVWB relied on the commenter's suggested model for economic analysis, and that the CCWB has not prepared a similar type of analysis. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-359**

The comment states that the following comments will summarize a technical approach for developing an economic impact analysis of the Proposed Project. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-360**

The comment summarizes a suggested approach to completing an economic analysis of the Proposed Project. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-361**

The comment summarizes a suggested approach to completing an economic analysis of the Proposed Project. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-362**

The comment expresses concern that the Proposed Project would have economic impacts, including reductions in land and lease rates, impacts on other agricultural businesses, and changes in food prices. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-363**

The comment describes some potential consequences of high regulatory costs for agricultural businesses. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-364**

The comment expresses concern that the Proposed Project will have economic impacts on disadvantaged communities. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance

requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-365**

The comment states that the economic impact assessment should take into account the cumulative nature of regulatory costs. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-366**

The comment states an opinion that the Proposed Project is likely to cause land retirement, land use change, and direct, indirect, and induced socioeconomic impacts to producers and ancillary businesses in the Central Coast. The comment also expresses concern that the economic assessments for the Proposed Order and the DEIR did not adequately quantify these impacts. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-367**

The comment lists several studies as support for Comment BN-363. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-368**

The comments from BN-368 to BN-415 constitute a Technical Memorandum, Subject: Example Economic Impacts of the Central Coast Water Board Ag Order 4.0, supporting the commenter's letter. Responses to specific comments that rely on this Technical Memorandum are addressed, as appropriate, where they were raised in the comment letter. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-369 through BN-375**

Refer to Response to Comment BN-368. The comment summarizes the commenter's findings regarding a suggested approach to completing an economic analysis of the Proposed Project. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-376 through BN-382**

Refer to Response to Comment BN-368. The comment summarizes a suggested approach to completing an economic analysis of the Proposed Project. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-383**

Refer to Response to Comment BN-368. The comment expresses an opinion that the Proposed Project will lead to land fallowing and crop switching. In addition, the comment summarizes a suggested approach to completing an economic analysis of the Proposed Project. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-384 through BN-391**

Refer to Response to Comment BN-368. The comment contains data used to support the commenter's suggested economic analysis approach. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-392**

Refer to Response to Comment BN-368. The comment summarizes the commenter's findings regarding a suggested approach to completing an economic analysis of the Proposed Project. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-393 through BN-394**

Refer to Response to Comment BN-368. The comment contains data used to support the commenter's suggested economic analysis approach. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-395**

Refer to Response to Comment BN-368. The comment summarizes the commenter's findings regarding a suggested approach to completing an economic analysis of the Proposed Project. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-396**

Refer to Response to Comment BN-368. The comment contains data used to support the commenter's suggested economic analysis approach. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-397**

Refer to Response to Comment BN-368. The comment summarizes the commenter's findings regarding a suggested approach to completing an economic analysis of the Proposed Project. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-398 through BN-399**

Refer to Response to Comment BN-368. The comment summarizes the commenter's findings regarding a suggested approach to completing an economic analysis of the Proposed Project. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-400**

Refer to Response to Comment BN-368. The comment expresses an opinion that implementation of the Proposed Project would affect retail prices and purchases by consumers. In addition, the comment summarizes a suggested approach and findings related to completing an economic analysis of the Proposed Project. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-401**

Refer to Response to Comment BN-368. The comment summarizes a suggested approach and findings related to completing an economic analysis of the Proposed Project. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-402 through BN-404**

Refer to Response to Comment BN-368. The comment contains citations used to support the commenter's suggested economic analysis approach. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-405**

Refer to Response to Comment BN-368. The comment summarizes a suggested approach and findings related to completing an economic analysis of the Proposed Project. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-406**

Refer to Response to Comment BN-368. The comment contains data used to support the commenter's suggested economic analysis approach. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-407**

Refer to Response to Comment BN-368. The comment expresses an opinion that the Proposed Project would result in increased risk to growers and this risk would cause growers to leave the industry. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-408**

Refer to Response to Comment BN-368. The comment states that its suggested analysis was developed for one example crop and that impacts may be different for other crops. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-409**

Refer to Response to Comment BN-368. The comment summarizes setback requirements in the Proposed Project. Please note that the revised Agricultural Order 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8.

**Response to Comment BN-410**

Refer to Response to Comment BN-368. The comment describes a method for evaluating impacts of proposed setbacks. Please note that the revised Agricultural Order 4.0 does not include the riparian and operational setback components. For more information related to riparian and operational setbacks, please refer to Master Response 2.8.

**Response to Comment BN-411**

Refer to Response to Comment BN-368. The comment provides citations for Comment BN-410. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-412**

Refer to Response to Comment BN-368. The comment provides citations for Comment BN-410. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-413**

Refer to Response to Comment BN-368. The comment expresses an opinion that the Proposed Project would result in land fallowing, changes in crop composition, permanent land use conversions, and socioeconomic impacts. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-414**

Refer to Response to Comment BN-368. The comment summarizes a suggested approach and findings related to completing an economic analysis of the Proposed Project. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-415**

Refer to Response to Comment BN-368. The comment summarizes a suggested approach and findings related to completing an economic analysis of the Proposed Project. In addition, the comment requests that the CCWB perform a similar economic analysis. In response to concerns related to potential adverse economic impacts from Agricultural Order 4.0, refer to Master Response 2.9. In response to comments related to the DEIR's analysis of economic impacts, including CEQA Guidelines compliance requirements and the adequacy of the DEIR's approach for impact analysis, please refer to Master Response 2.10.

**Response to Comment BN-416**

The comments from BN-416 to BN-566 constitute the document entitled Technical Memorandum on the CCWB's DAO 4.0, supporting the commenter's letter. Responses to specific comments that rely on this Technical Memorandum are addressed, as appropriate, where they were raised in the comment letter.

**Response to Comment BN-417**

Refer to Response to Comment BN-416. The comment states that nonpoint discharges have highly variable flow rates/volumes and constituent concentrations. Refer to Responses to Comments BN-418 to BN-421 for specific responses to the more detailed concerns presented further in these comments.

**Response to Comment BN-418**

Refer to Response to Comment BN-416. The comment identifies various factors that cause variability in agricultural discharges. The comment is noted. This comment is summarized and responded to in the following Master Responses: 2.2.3; 2.3.9; 2.3.3; 2.4.2; 2.5.5; 2.5.1; 2.5.2; 2.5.3; 2.6.6; and 2.7.3.

**Response to Comment BN-419**

The comment explains terminology used in Comments BN-417 to BN-566. The comment is noted. It does not address environmental issues evaluated in the DEIR, and no further response is necessary.

**Response to Comment BN-420 through BN-421**

Refer to Response to Comment BN-416. This comment is summarized and responded to in the following Master Responses: 2.1.2 and 2.5.2.

**Response to Comment BN-422**

Refer to Response to Comment BN-416. The comment states that responsibility for watershed concerns is inappropriately assigned to individual growers. This comment is responded to in Master Response 2.8.8.

**Response to Comment BN-423 through BN-424**

Refer to Response to Comment BN-416. This comment is responded to in Master Response 2.8.8.

**Response to Comment BN-425**

Refer to Response to Comment BN-416. The comment states that it is infeasible to meet the numeric limits of the Draft WDRs at the edge of field under all conditions. Refer to Responses to Comments BN-426 to BN-427 for specific responses to the more detailed concerns presented further in these comments.

**Response to Comment BN-426**

Refer to Response to Comment BN-416. This comment is summarized and responded to in the following Master Responses: 2.1.8; 2.1.10; 2.1.11; 2.3.7; 2.3.3; and 2.3.4.

**Response to Comment BN-427**

Refer to Response to Comment BN-416. This comment is summarized and responded to in the following Master Responses: 2.1.14; 2.4.1; and 2.4.2.

**Response to Comment BN-428**

Refer to Response to Comment BN-416. The comment states that the Riparian Area Management Plan requirements are unlikely to achieve the CCWB's stated objectives. This comment is responded to in Master Response 2.8.8.

**Response to Comment BN-429 through BN-430**

Refer to Response to Comment BN-416. This comment is responded to in Master Response 2.8.8.

**Response to Comment BN-431**

Refer to Response to Comment BN-416. The comment states that the Irrigation and Nutrient Management Plan approach for regulating nitrate discharges is overly simplistic and likely infeasible to achieve. Refer to Responses to Comments BN-432 to BN-433 for specific responses to the more detailed concerns presented further in these comments.

**Response to Comment BN-432**

Refer to Response to Comment BN-416. This comment is summarized and responded to in the following Master Responses: 2.1.8; 2.2.3; 2.3.6; 2.3.3; and 2.3.4.

**Response to Comment BN-433**

Refer to Response to Comment BN-416.

**Response to Comment BN-434**

Refer to Response to Comment BN-416. The comment states that monitoring at the ranch or field level will not provide the needed data and information. Refer to Responses to Comments BN-435 to BN-437 for specific responses to the more detailed concerns presented further in these comments.

**Response to Comment BN-435**

Refer to Response to Comment BN-416. This comment is summarized and responded to in the following Master Responses: 2.3.9; 2.4.2; 2.5.5; 2.5.11; 2.5.2; 2.5.3; 2.6.6; and 2.7.3.

**Response to Comment BN-436**

Refer to Response to Comment BN-416. This comment is summarized and responded to in the following Master Responses: 2.2.3 and 2.5.5.

**Response to Comment BN-437**

Refer to Response to Comment BN-416. This comment is summarized and responded to in the following Master Responses: 2.5.5 and 2.5.3.

**Response to Comment BN-438**

Refer to Response to Comment BN-416. The comment states that the Agricultural WDRs should be data-driven and science-based, and should be modified to include a watershed-based approach. Refer to the Response to Comment BN-439 for specific responses to the more detailed concerns presented further in this comment.

**Response to Comment BN-439**

Refer to Response to Comment BN-416. This comment is summarized and responded to in the following Master Responses: 2.5.5; 2.5.6; 2.5.11; and 2.5.3.

**Response to Comment BN-440**

Refer to Response to Comment BN-416. The CCWB acknowledges the commenter's input.

**Response to Comment BN-441**

Refer to Response to Comment BN-416. The CCWB acknowledges the commenter's background and interests.

**Response to Comment BN-442**

Refer to Response to Comment BN-416. Comment noted.

**Response to Comment BN-443**

Refer to Response to Comment BN-416. The comment summarizes the proposed requirements included in the DAO 4.0.

**Response to Comment BN-444**

Refer to Response to Comment BN-416. The comment explains the commenter's approach to the technical memorandum.

**Response to Comment BN-445**

Refer to Response to Comment BN-416. The comment states that nonpoint discharges have highly variable flow rates/volumes and constituent concentrations. Refer to Responses to Comments BN-446 to BN-456 for specific responses to the more detailed concerns presented further in these comments.

**Response to Comment BN-446**

Refer to Response to Comment BN-416. The comment is summarized and responded to in the following Master Responses: 2.5.5; 2.5.11; 2.5.2; and 2.5.3.

**Response to Comment BN-447**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.5.3.

**Response to Comment BN-448**

Refer to Response to Comment BN-416. The comment provides citations for Comment BN-446. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-449**

Refer to Response to Comment BN-416. The comment provides citations for Comment BN-447. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-450 through BN-452**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.5.3.

**Response to Comment BN-453**

Refer to Response to Comment BN-416. The comment provides a definition for "time of concentration" of a watershed. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-454**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.5.3.

**Response to Comment BN-455**

Refer to Response to Comment BN-416. The comment describes aspects of treatment system design. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-456**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.5.3.

**Response to Comment BN-457**

Refer to Response to Comment BN-416. The comment states that direct application of water quality objectives to nonpoint sources is inappropriate. Refer to Responses to Comments BN-446 to BN-456 for specific responses to the more detailed concerns presented further in these comments.

**Response to Comment BN-458**

Refer to Response to Comment BN-416. The comment cites Section 13241 of the Porter-Cologne Act. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-459**

Refer to Response to Comment BN-416. The comment states that the Central Coast Basin Plan defines agricultural runoff as a nonpoint source. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-460**

Refer to Response to Comment BN-416. The comment states that water quality objectives were not intended to apply to nonpoint sources. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-461**

Refer to Response to Comment BN-416. The comment states that the CCWB failed to take into account the potential change in regulatory costs between Ag Order 3.0 and the DAO 4.0. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-462**

Refer to Response to Comment BN-416. This comment is summarized and responded to in Master Response 2.9.

**Response to Comment BN-463**

Refer to Response to Comment BN-416. The comment states that water quality objectives apply within a receiving water and not to individual discharges. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-464**

Refer to Response to Comment BN-416. The comment is summarized and responded to in the following Master Responses: 2.5.5; 2.5.11; 2.5.2; 2.5.3; 2.6.6; and 2.7.3.

**Response to Comment BN-465**

Refer to Response to Comment BN-416. The comment states that it is not currently possible to calculate technically appropriate numeric limits applicable to agricultural discharges. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-466 through BN-467**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-468**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.5.3.

**Response to Comment BN-469 through BN-470**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-471**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.5.3.

**Response to Comment BN-472**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-473 through BN-475**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.5.2.

**Response to Comment BN-476**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.5.3.

**Response to Comment BN-477**

Refer to Response to Comment BN-416. The comment is summarized and responded to in the following Master Responses: 2.1.2 and 2.5.2.

**Response to Comment BN-478 through BN-480**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-481 through BN-482**

Refer to Response to Comment BN-416. The comment is summarized and responded to in the following Master Responses: 2.1.2 and 2.5.2.

**Response to Comment BN-483 through BN-485**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-486 through BN-487**

Refer to Response to Comment BN-416. The comment is summarized and responded to in the following Master Responses: 2.1.2 and 2.5.2.

**Response to Comment BN-488 through BN-489**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-490 through BN-496**

Refer to Response to Comment BN-416. The comment is summarized and responded to in the following Master Responses: 2.6.3 and 2.6.4.

**Response to Comment BN-497**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-498 through BN-501**

Refer to Response to Comment BN-416. The comment is responded to in Master Response 2.8.8.

**Response to Comment BN-502**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-503 through BN-513**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.5.8.

**Response to Comment BN-514**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-515 through BN-518**

Refer to Response to Comment BN-416. The comment is responded to in Master Response 2.8.8.

**Response to Comment BN-519**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-520 through BN-535**

Refer to Response to Comment BN-416. The comment is responded to in Master Response 2.8.8.

**Response to Comment BN-536 through BN-539**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-540 through BN-541**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.1.8.

**Response to Comment BN-542 through BN-544**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-545**

Refer to Response to Comment BN-416. The comment is summarized and responded to in the following Master Responses: 2.5.5; 2.5.6; 2.5.11; and 2.5.3.

**Response to Comment BN-546**

Refer to Response to Comment BN-416. The comment is summarized and responded to in the following Master Responses: 2.5.5; 2.5.11; 2.5.2; 2.5.3; 2.6.6; and 2.7.3.

**Response to Comment BN-547**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.5.5.

**Response to Comment BN-548 through BN-549**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.6.3.

**Response to Comment BN-550**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-551**

Refer to Response to Comment BN-416. The comment is summarized and responded to in the following Master Responses: 2.5.5; 2.5.6; 2.5.11; 2.5.3; and 2.6.3.

**Response to Comment BN-552**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.6.3.

**Response to Comment BN-553 through BN-555**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-556**

Refer to Response to Comment BN-416. The comment is summarized and responded to in the following Master Responses: 2.5.5; 2.5.7; and 2.5.3.

**Response to Comment BN-557**

Refer to Response to Comment BN-416. The comment is summarized and responded to in the following Master Responses: 2.5.5; 2.5.6; 2.5.11; and 2.5.3.

**Response to Comment BN-558**

Refer to Response to Comment BN-416. The comment is summarized and responded to in the following Master Responses: 2.5.5; 2.5.6; 2.5.7; 2.5.11; and 2.5.3.

**Response to Comment BN-559**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-560**

Refer to Response to Comment BN-416. The comment is summarized and responded to in the following Master Responses: 2.1.11 and 2.5.3.

**Response to Comment BN-561**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.5.3.

**Response to Comment BN-562**

Refer to Response to Comment BN-416. The comment is noted. It does not address substantive contents of the DEIR, and no further response is necessary.

**Response to Comment BN-563**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.5.2.

**Response to Comment BN-564**

Refer to Response to Comment BN-416. The comment is summarized and responded to in the following Master Responses: 2.8.8; 2.5.5; and 2.5.7.

**Response to Comment BN-565**

Refer to Response to Comment BN-416. The comment is summarized and responded to in Master Response 2.5.3.

**Response to Comment BN-566**

Refer to Response to Comment BN-416. The comment is summarized and responded to in the following Master Responses: 2.1.8; 2.1.11; 2.2.3; 2.3.1; and 2.5.8.