## APPENDIX D

# Health Risk Assessments

# Appendix D1
# LRDP Update Health Risk Assessment

January 2021 | Health Risk Assessment

# LONG RANGE DEVELOPMENT PLAN UPDATE

University of California, Berkeley

*Prepared for:*

**University of California, Berkeley**
Contact: Raphael Breines, Senior Planner
Physical & Environmental Planning
300 A&E Building
Berkeley, CA 94720-1382
planning@berkeley.edu

*Prepared by:*

**PlaceWorks**
Contact: Steve Bush, PE, Senior Engineer
1625 Shattuck Avenue, Suite 300
Berkeley, CA 94709
510.848.3815
info@placeworks.com
www.placeworks.com

PLACEWORKS

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# 1. Introduction

The University of California, Berkeley (UC Berkeley) has prepared a Long Range Development Plan (LRDP) Update (proposed project) to accommodate anticipated enrollment growth at the university from 2020 through the academic year 2036-2037. The proposed LRDP Update addresses future campus development that can reasonably be anticipated, including forecasts of student, faculty, and staff populations; number of beds provided in university residential buildings; building square footage; and parking spaces. This air toxics Health Risk Assessment (HRA) is part of the Environmental Impact Report (EIR) for the LRDP Update.

Growth addressed by the LRDP Update entails the development of new facilities and equipment which emit toxic air contaminants (TACs), such as diesel-fueled emergency generators and research laboratories. Guidance from the California Environmental Protection Agency (Cal/EPA), Office of Environmental Health Hazard Assessment (OEHHA), California Air Resources Board (CARB), California Air Pollution Control Officers Association (CAPCOA), and the Bay Area Air Quality Management District (BAAQMD) recommend the completion of health risk assessments to determine the impacts of TAC emissions upon sensitive receptors in the vicinity of the project.

This report presents the emissions calculations, modeling methodology, and the health risk results of the proposed project. The HRA follows the previously BAAQMD-approved methodology for the previous LRDP (UC Berkeley, 2003) and the Central Campus HRA update (ERM, 2009). Air dispersion modeling was conducted using the AERMOD atmospheric dispersion model (Lakes AERMOD View, version 9.9.0). The health risk calculations were performed using CARB's Hot Spots Analysis and Reporting Program, Version 2 (HARP2), Air Dispersion Modeling and Risk Tool (dated 19121). HARP2 includes the current OEHHA toxicity factor database to calculate cancer risks and non-cancer health hazards for various receptor types.

This HRA considers the health impact to off-site residents (adults and children in the nearby residences), off-site workers, and sensitive receptors (i.e., day cares, schools, hospitals, senior living). It should be noted that these health impacts were based on conservative (i.e., health protective) assumptions. The United States Environmental Protection Agency (USEPA, 2005) and OEHHA (2015) note that conservative assumptions used in a risk assessment are intended to ensure that the estimated risks do not underestimate the actual risks. Therefore, the estimated risks do not necessarily represent actual risks experienced by populations near a site. The use of conservative assumptions tends to produce upper-bound estimates of risk and usually overestimate exposure and thus risk.

For residential-based receptors, the following conservative assumptions were used:

- It was assumed that maximum exposed children and adults stood outside at the site for 24 hours per day, 350 days per year. In reality, California residents typically will spend on average 2 hours per day outdoors at their residences (USEPA, 2011). This would result in lower estimated risk values.

# 1. Introduction

- The calculated risk for infants from third trimester to age 2 is multiplied by a factor of 10 and for children from 2-16 years is multiplied by a factor of 3 to account for early life exposure and uncertainty in child versus adult exposure impacts (OEHHA, 2015).

For maximum exposed sensitive receptor (school or day-care), the following conservative assumptions were used:

- It was assumed that maximum exposed receptor (Montessori Family School, offering preschool through middle school programs) stood outside at the site for 24 hours per day, 250 days per year for 12 years (age 3 to 14 years) for preschool to middle school students (transitional kindergarten to grade 8) (Montessori Family School, 2020). In reality, children and students are exposed to outdoor pollutant concentration levels for a portion of the day and are exposed to reduced indoor pollutant concentrations for the remaining hours. This would result in lower estimated risk values.
- The calculated risk for children from ages 2-16 years is multiplied by a factor of 3 to account for early life exposure and uncertainty in child versus adult exposure impacts (OEHHA, 2015).

Thus, the estimated risks provided in this HRA are conservative.

# 2. Project Description

## 2.1 SITE LOCATION

UC Berkeley is located in the East Bay of the San Francisco Bay area. The university is in an urbanized area, surrounded by a mix of largely residential, institutional, and commercial land uses to the north, west, and south, and open space within the hills to the east. It is situated on the eastern side of Berkeley near Downtown Berkeley and extends east into the Oakland hills. The university is located almost entirely within Alameda County, with a small portion to the east extending into Contra Costa County.

The EIR Study Area is organized into the five zones described herein and shown on Figure 1. These zones are collectively referred to as the university campus.

**Campus Park.** The Campus Park is the main campus and is bounded by Hearst Avenue to the north, Gayley Road/Piedmont Avenue to the east, Bancroft Way to the south, and Oxford Street to the west. It covers an area of approximately 176 acres, comprising 16 percent of the campus land area. The majority of university facilities are located on the Campus Park, including most academic, administrative, and student life facilities.

**Hill Campus West.** The Hill Campus West is located on the eastern side of the Campus Park at the base of the hills. It covers an area of approximately 51 acres, comprising 5 percent of the campus land area. It contains recreational facilities, including the California Memorial Stadium, Witter Rugby Field, Softball Field, Haas Clubhouse, Maxwell Family Field and Stadium Garage, and Hearst Greek Theatre, as well as student housing.

**Hill Campus East.** The Hill Campus East extends east from the Hill Campus West into the hills and includes land within the city of Oakland boundaries as well as a small portion extending into Contra Costa County. The Hill Campus East consists primarily of open space. It covers an area of approximately 751 acres, comprising 69 percent of the campus land area. It also contains fire trails, several research facilities including Lawrence Hall of Science, Space Sciences Laboratory, Mathematical Sciences Research Institute, and the UC Berkeley Botanical Garden.

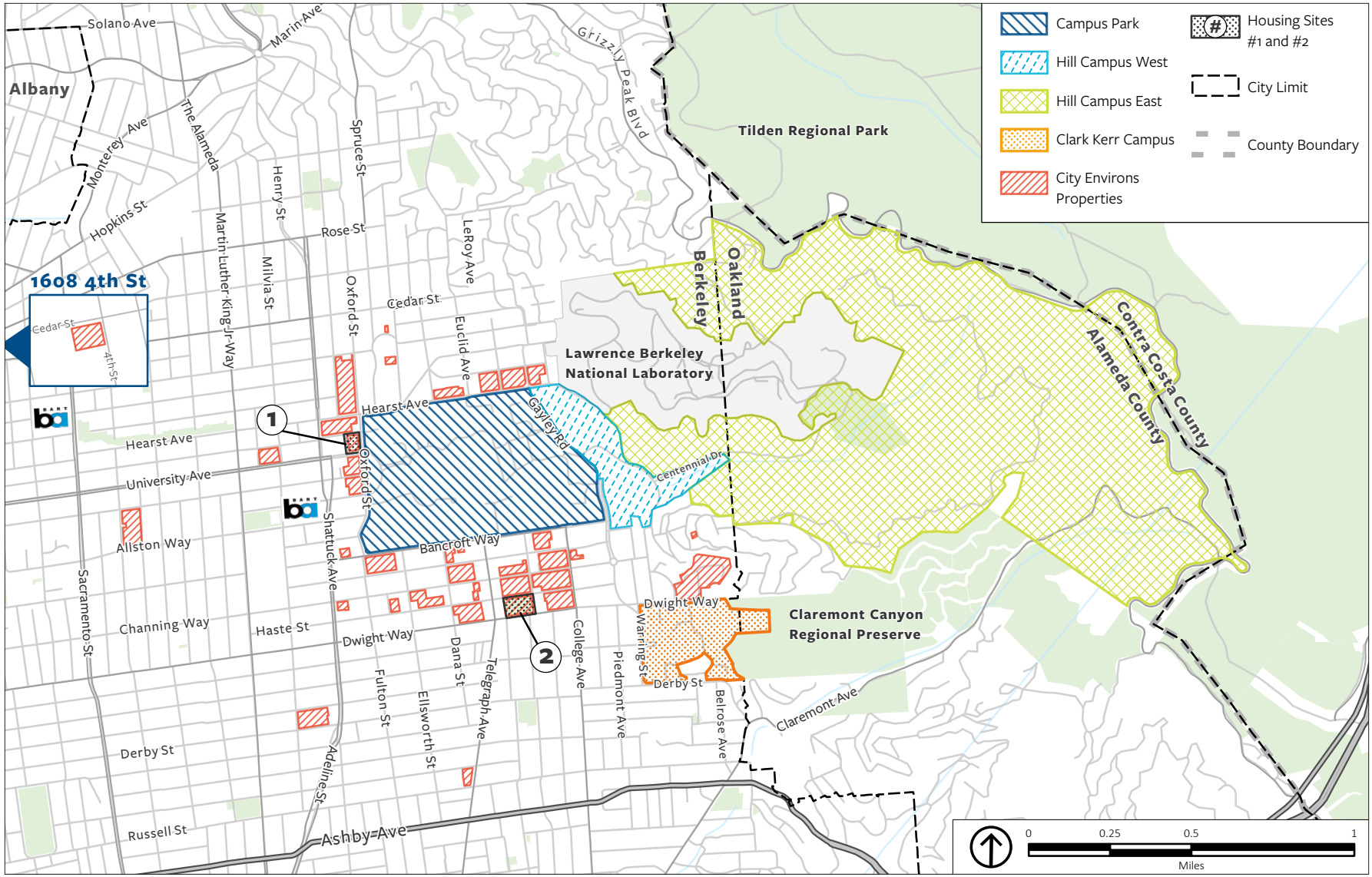
**Clark Kerr Campus.** The Clark Kerr Campus is located several blocks southeast of the Campus Park. It covers an area of 44 acres, comprising 4 percent of the campus land area.

**City Environs Properties.** The City Environs Properties refers to properties owned or leased by the university that are outside of the areas described previously, located within the city of Berkeley. They comprise a total of approximately 70 acres or 6 percent of the campus land area. University properties within the City Environs Properties are mostly located in the high-density area within roughly one-half mile of the Campus Park, and land uses within this area are generally influenced by their proximity to the university campus.

The nearest sensitive receptors to the university are single and multi-family residences located approximately 50 feet to the north along Hearst Avenue. Off-campus sensitive receptors are shown in Figure 2, which include nearby schools, day-cares, senior living residences, and hospitals.

## 2.2 POTENTIAL AREAS OF NEW DEVELOPMENT AND REDEVELOPMENT

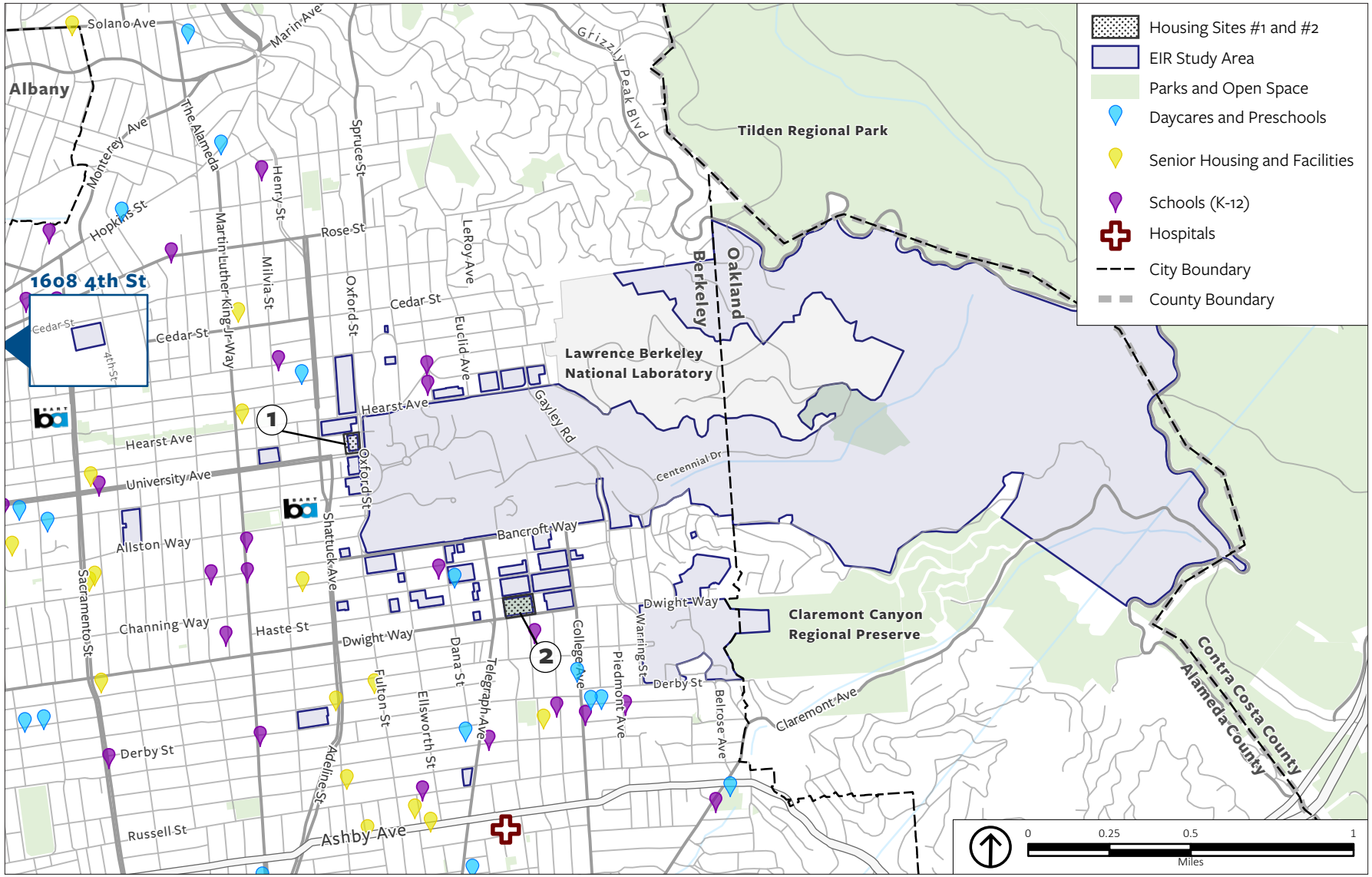
As part of the proposed LRDP Update planning process, the university identified potential areas for new development, redevelopment, and renovation that could accommodate the proposed buildout projections shown in Table 3-2 of the Draft EIR (DEIR). Potential areas of new development are identified on limited sites that are not currently developed or are underdeveloped, and potential areas of redevelopment are identified on sites where the existing structure would be demolished, and a new structure(s) would be constructed in their place. Potential areas of new development and redevelopment are shown on DEIR Figure 3-3, and potential areas of renovation are shown on DEIR Figure 3-4. The HRA-related areas of new development and redevelopment are shown in Figure 3.




Source: Alameda County, 2019; ESRI, 2020; PlaceWorks, 2021; Sasaki and Page; 2019.

Figure 1

## EIR Study Area

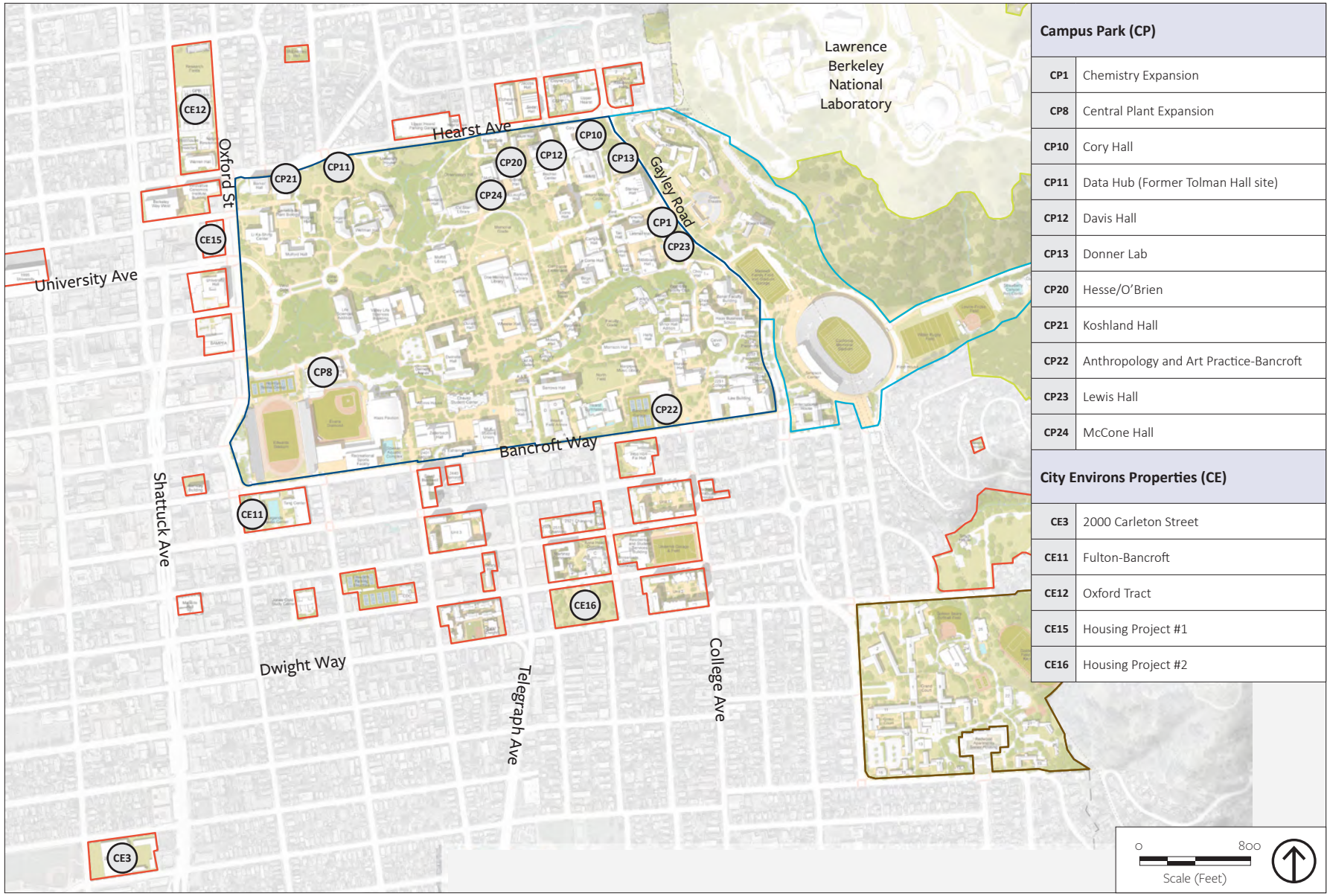



Source: Alameda County, 2019; GooglePlaces API, 2020; ESRI, 2020; PlaceWorks, 2021; Sasaki and Page; 2019.

Figure 2

**Note:** All residential areas are also considered to be sensitive land uses.

## UC Berkeley Off-Campus Sensitive Receptor Locations




| Campus Park (CP) | |
|---|---|
| CP1 | Chemistry Expansion |
| CP8 | Central Plant Expansion |
| CP10 | Cory Hall |
| CP11 | Data Hub (Former Tolman Hall site) |
| CP12 | Davis Hall |
| CP13 | Donner Lab |
| CP20 | Hesse/O'Brien |
| CP21 | Koshland Hall |
| CP22 | Anthropology and Art Practice-Bancroft |
| CP23 | Lewis Hall |
| CP24 | McCone Hall |
| **City Environs Properties (CE)** | |
| CE3 | 2000 Carleton Street |
| CE11 | Fulton-Bancroft |
| CE12 | Oxford Tract |
| CE15 | Housing Project #1 |
| CE16 | Housing Project #2 |

Source: Alameda County, 2019; ESRI, 2020; Sasaki and Page; 2019; PlaceWorks, 2021.

Campus Park | Hill Campus West | Hill Campus East | Clark Kerr Campus | City Environs Properties

Figure 3

## HRA-Related Areas of New Development and Redevelopment

# 2. Project Description

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# 3. Emissions Inventories

## 3.1 SOURCE SCENARIOS

The health risks were determined for the existing baseline year (2018) and for the LRDP horizon year (2036-2037) from all existing, proposed, and/or modified emission sources.

The following existing emission sources were included in the health risk evaluation.

- Laboratory emissions from 37 existing buildings
- 58 existing emergency generators (diesel-fueled engines); 32 on-campus, 6 in Hill Campus, 19 in City Environs, 1 Clark Kerr Campus
- Cogeneration plant (natural gas combustion turbine, duct burner)
- Three central plant boilers (natural gas combustion)
- One natural-gas boiler at Clark Kerr Campus
- Hazardous Materials Facility (fume hood emissions from bulking operations)

The following emission sources were evaluated as part of the LRDP Update.

- Laboratory Emissions from 12 new buildings and/or renovations to existing buildings
- 7 new diesel-fueled emergency generators
- Continued use of the existing cogeneration plant (natural gas combustion turbine, duct burner, and three boilers) under the business as usual (BAU) scenario (worst-case scenario for TAC emissions)
- Continued operation of the natural-gas boiler at the Clark Kerr Campus
- Continued operation of the Hazardous Materials Facility

The following emission sources were <u>excluded</u> from the HRA due to insignificant impact: [1]

- Campus-wide painting and solvent cleaning operations
- Natural-gas boilers less than 10 MMBTU/hr (million British thermal units per hour)

[1] Based on review of the 2020 LRDP Central Campus HRA (2003) and 2009 HRA Update for UC Berkeley, the campus-wide painting and solvent operations contributes 0.5 percent or less of the total health risks. Under their Major Facility Review Permit (BAAQMD, 2020a), BAAQMD enforces VOC limits on campus-wide painting operations through rules and regulations, including Regulation 8, Rule 19 for metal surface coating, Rule 23 for wooden surfaces, Rule 31 for plastics, and Rule 49 for aerosol paint products (BAAQMD, 2020). Additional permit restrictions including limits to the total amount of non-water-based and water-based coatings and cleanup solvents used in any consecutive 12-month period.

Small natural-gas boilers (< 10 MMBTU/hr) were not included in previous Central Campus HRAs (2000 and 2003) due to insignificant health risks.

## 3.2 EMISSION SOURCES

Sources evaluated in the HRA are summarized below, and the emission rate calculations are provided in Appendix HRA_A. The annual average emissions (pounds per year, lbs/yr) and maximum hourly emissions (pounds per hour, lbs/hr) were determined for each source.

**Emergency Generators.** A list of existing and proposed new diesel-fueled emergency generators was provided by the University. Emergency generator diesel particulate matter (DPM) emissions were estimated based on the expected annual testing frequency of 30 minutes twice per month, plus one-hour load bank testing once per year (13 hours total per year). Emission factors for generators (grams per brake horsepower per hour, g/bhp-hr) are based on the make, model/engine year, and size (bhp) of the engine, per CARB's 2010 emission standards.

**Laboratory Emissions.** Laboratory emissions were estimated using emission factors developed by the university as described in previously prepared UC Berkeley HRAs and by other UC Campuses (UC Berkeley, 2003; ERM, 2009). These emission factors were based on a campus-wide chemical inventory by laboratory building. Chemicals were evaluated for emission factor development taking many factors into account, including emissions potential (based on physical state and vapor pressure), inventory quantities, and relative airborne toxicity. After ruling out chemicals with low emissions potential, chemicals were ranked by inventory quantities and relative toxicity. Chemicals with low to moderate toxicity but used in high quantities, such as isopropanol, were included, and well as chemicals with higher toxicity. All laboratories were categorized into three different types:

- Lab Type I – Chemistry and Chemical Engineering
- Lab Type II – General Biological Sciences
- Lab Type III – Physical Sciences/Other (Engineering, Geology, Physics, etc.)

The total emission quantities of each chemical on both a maximum hourly and annual average basis were summed for each lab type across all buildings and then divided by the campus-wide total square footage of wet laboratory space for each lab type. This provided a set of laboratory emission factors by chemical for each lab type, expressed as grams per second emissions per square foot of wet laboratory space (g/s per ft2).

Wet laboratory (laboratory where chemicals are used) space was determined from review of previous UC Berkeley HRAs, where feasible. For buildings not previously evaluated, wet lab square footage was estimated as the total "Research Laboratory and Studio" square footage provided by the University. For existing buildings undergoing renovation through the LRDP, wet lab space was estimated based on the percent increase or decrease in total proposed building square footage compared to the existing building square footage. Table 1 presents the wet lab space used for the LRDP Update.

Laboratory chemicals were selected for inclusion in the HRA based on a "snapshot" of the UC Berkeley campus chemical inventory (October 2020), comparison to previous UC Berkeley HRAs, and chemicals which OEHHA/HARP2 provides toxicity factors (CARB, 2019).

Table 1 LRDP Update Wet Laboratory Space

| Building | Lab Type | Existing Building (SF) | Proposed Building (SF) | Percent Change | Wet Lab Space (SF) |
|---|---|---|---|---|---|
| CP1 – Chemistry (Heathcock Hall)[1] | I | n/a | 143,000 | n/a | 30,030 |
| CP10 – Cory Hall[2] | III | 206,054 | 233,000 | 13% increase | 11,274 |
| CP12 – Davis Hall[2] | III | 137,806 | 138,000 | 0.1% increase | 56,379 |
| CP13 – Donner Lab[3] (Joint Chemistry & Engineering Buildings) | I | n/a | n/a | n/a | 35,688 |
| CP20 – Hesse/O'Brien Replacement[2] | III | 82,660 | 265,000 | 221% increase | 68,795 |
| CP21 – Koshland Hall Redevelopment[2] | II | 153,700 | 129,000 | 16% decrease | 41,507 |
| CP22 – Anthropology and Art Practice-Bancroft Redevelopment[2] | III | 156,800 | 459,000 | 193% increase | 23,556 |
| CP23 – Lewis Hall Redevelopment[2] | I | 68,146 | 146,000 | 114% increase | 30,727 |
| CP24 – McCone Hall Redevelopment[2] | III | 123,612 | 146,000 | 18% increase | 9,246 |
| CP26 – Morgan Hall Redevelopment[2] | II | 56,637 | 131,200 | 132% increase | 28,074 |
| Woo Han Fai Hall, Bakar BioEnginuity Hub[4] | II | n/a | n/a | n/a | 21,000 |

Sources:
1 CP1 wet laboratory square footage (SF) estimated using the fraction of wet lab space per building SF for similar lab type (i.e., Lewis Hall, Lab Type I, 21% of building SF as wet lab SF). 21 percent of proposed building SF (143,000) is 30,030 SF.
2 Draft Environmental Impact Report (DEIR), LRDP Project Description, Table 3-2.
3 UC Berkeley, 2017. Detailed Program Report for Joint Chemistry and Engineering Building, Table 2.5-1.
4 Yorke Engineering, LLC, 2018. Health Risk Assessment for Woo Hon Fai Hall. Dated February 2018.

**Cogeneration Plant and Boilers.** A cogeneration plant (Central Plant) provides steam and electricity that is powered by natural gas. The Campus Park's cogeneration plant consists of a high-pressure steam distribution infrastructure servicing approximately 120 university buildings and providing approximately 90 percent of the electricity and 100 percent of the steam needs for the Campus Park. The Central Plant includes one turbine with a duct burner and three permitted boilers (Boilers No. 2, 3, and 4). Existing annual emissions from the Central Plant were based on the university provided 2018 fuel-use data (natural-gas) and emission factors for turbines and boilers from BAAQMD's TAC Emission Factor Guidelines (BAAQMD, 2020b). Maximum hourly emissions were based on the rated capacities of each unit.

- Central Plant Turbine: 243 MMBTU/hr
- Central Plant Duct Burner: 84 MMBTU/hr
- Central Plant Boilers: 137 MMBTU/hr, two 135 MMBTU/hr
- Clark Kerr Boiler: 10.5 MMBTU/hr

The 2020 Campus Energy Plan identified several options for replacing and/or upgrading the cogeneration plant at the UC Berkeley Campus. This business as usual (BAU) scenario (Scenario 0), which assumes maintenance and equipment replacement. Replacement of the cogeneration plant (2020 Campus Energy Plan Option 2) would not meet the UC Berkeley carbon neutrality initiatives; and therefore, the reductions from this scenario are not considered in the "with Sustainability Plan" scenario. The "with Sustainability Plan"

# 3. Emissions Inventories

scenario considers both the Central Steam Plant option that utilizes renewable sources of electricity rather than natural gas (2020 Campus Energy Plan Option 10C) and the Hybrid Nodal Heat Recover that would provide energy resilience during power outages (2020 Campus Energy Plan Option 12). All other options under the 2020 Campus Energy Plan would result in a reduction in natural gas combustion compared to the BAU scenario.

Under the BAU scenario, annual turbine and duct burner operations were assumed similar to the existing year. Current permit conditions limit operation of the three Central Plant boilers to less than 10 percent of their rated capacity (BAAQMD, 2020a). Therefore, future annual average Central Plant boiler emissions were assumed based on the boilers operating at 10 percent of their capacity. Maximum hourly operations assume all units are operating simultaneously at full load. For the boiler at the Clark Kerr Campus, emissions associated with the LRDP Update were assumed the same as existing emissions.

**Hazardous Materials Facility.** The Hazardous Material Facility (HMF) emissions methodology used in the 2000 and 2003 Central Campus HRAs was used to determine the existing (2018) and future emissions associated with the LRDP update. Emissions occur during weekly bulk pouring operations of laboratory waste chemicals, which are on average 4 hours per week. The following surrogate TACs were selected based on toxicity, quantities typically used on average, and volatility: carbon tetrachloride, chloroform, formaldehyde, and methylene chloride (UC Berkeley, 2003). The existing emissions are based on USEPA fugitive emissions for solvent storage and handling and bulk pouring information provided by the university (USEPA, 2018). The HMF emissions associated with the LRDP Update are based on an approximate 48 percent increase in wet lab space from 742,759 SF (existing) to 1,099,036 SF (total with LRDP Update).

# 4. Air Dispersion Modeling

Air dispersion modeling was performed using the AERMOD atmospheric dispersion model (Lakes AERMOD View, version 9.9.0). The model is a steady state Gaussian plume model and is an approved model by BAAQMD for estimating ground-level or flagpole-level impacts from point and fugitive sources in simple and complex terrain. The model requires additional input parameters, including chemical emission data and local meteorology. Regulatory default options were selected in AERMOD, and "urban" land use was selected for projects in Alameda County.

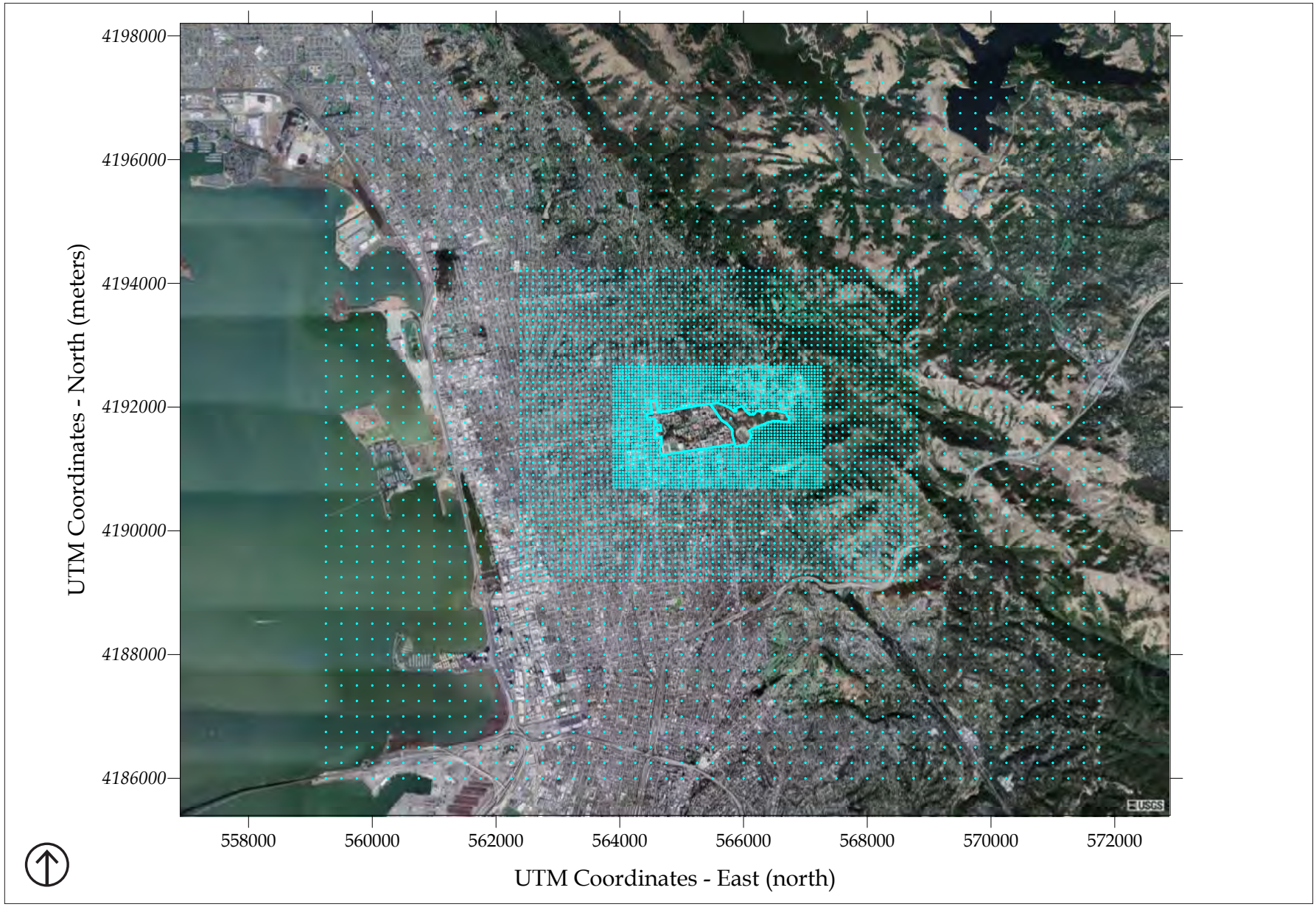
After consultation with BAAQMD, meteorological (met) data from the Metro Oakland International Airport (Oakland) meteorological station for the years 2009-2013 was selected to represent local weather conditions and prevailing winds. The prevailing wind direction at the Oakland met station is to the east-southeast, and the wind rose is provided in Appendix HRA_B.

The modeling analysis also considered the spatial distribution and elevation of each emitting source in relation to the sensitive receptors. To accommodate the model's Cartesian grid format, direction-dependent calculations were obtained by identifying the Universal Transverse Mercator (UTM) coordinates for each source location. In addition, digital elevation model (DEM) data for the area were obtained and included in the model runs to account for complex terrain. Exhaust stack parameters for the emission sources were provided by the University, including release heights, stack diameters, and exhaust temperatures and velocities. Building downwash was accounted for in Lakes AERMOD View using the Building Profile Input Program Prime (BPIP-Prime) module.[2] This program adjusts plume dispersion to account for buildings or other structures near point sources.

A unit emission rate of 1 gram per second was used for all emission sources to obtain normalized pollutant concentrations per unit emission rate that are necessary for input into the risk assessment model (HARP2). Receptors were placed at 20 meter increments along the Campus Park boundaries. Rectangular receptor grids were placed consisting of 50 m increments to a distance of 500 m, at 100 m increments to a distance of 2 km, and at a distance of 250 m increments to a distance of 5 km. The air dispersion modeling generates two plot files for each emission source (annual average and hourly) which contain the normalized pollutant concentration at each receptor. A default receptor height of 1.5 m was selected as the average breathing height (BAAQMD, 2012).

The receptor locations are presented in Figure 4. The AERMOD model output is presented in Appendix HRA_B.

[2] Building downwash is the effect of a plume being pulled toward the ground as the plume passes over the building due to wake produced on the lee side of the building.




Source: PlaceWorks, 2021.

Figure 4

**Receptor Locations**

# 5. Risk Characterizations

## 5.1 SIGNIFICANCE THRESHOLDS

In May 2011, the updated BAAQMD CEQA Air Quality Guidelines were amended to include a risk and hazards threshold for new receptors and modified procedures for assessing impacts related to risk and hazard impacts; however, this later amendment regarding risk and hazards was the subject of the December 17, 2015, California Supreme Court decision (*California Building Industry Association v BAAQMD*), which clarified that CEQA does not require an evaluation of impacts of the environment on a project. The Supreme Court also found that CEQA requires the analysis of exposing people to environmental hazards in specific circumstances, including the location of development near airports, schools near sources of toxic contamination, and certain exemptions for infill and workforce housing. The Supreme Court also held that public agencies remain free to conduct this analysis regardless of whether it is required by CEQA. To account for these updates, BAAQMD published a new version of the Guidelines dated May 2017, which includes revisions made to address the Supreme Court's opinion.

For this HRA, the BAAQMD significance thresholds were deemed to be appropriate and the thresholds that were used for this project are shown below:

- Excess cancer risk of more than 10 in a million
- Non-cancer hazard index (chronic or acute) greater than 1.0
- Incremental increase in average annual $PM_{2.5}$ concentration of greater than 0.3 $\mu g/m^3$

In addition, there are thresholds of significance for cumulative impacts defined as the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius of a source or receptor, plus the contribution from the project, exceeds the following:

- Excess cancer risk of more than 100 in a million
- Non-cancer hazard index (chronic or acute) greater than 10
- Average annual $PM_{2.5}$ concentration of greater than 0.8 $\mu g/m^3$

The methodology used in this HRA is consistent with the following BAAQMD and the Office of Environmental Health Hazard Assessment (OEHHA) guidance documents:

- BAAQMD, 2017. *California Environmental Quality Act Air Quality Guidelines*. May 2017.
- OEHHA. 2015. Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments. February 2015.

# 5. Risk Characterizations

## 5.2 CARCINOGENIC CHEMICAL RISK

Carcinogenic compounds are not considered to have threshold levels (i.e., dose levels below which there are no risks). Therefore, any exposure will have some associated risk. Health risks associated with exposure to carcinogenic compounds can be defined in terms of the probability of developing cancer as a result of exposure to a chemical at a given concentration. The cancer risk probability is determined by multiplying the chemical's annual concentration by its cancer potency factor (CPF), a measure of the carcinogenic potential of a chemical when a dose is received through the inhalation pathway. It is an upper-limit estimate of the probability of contracting cancer as a result of continuous exposure to an ambient concentration of one microgram per cubic meter ($\mu g/m^3$), averaged over a lifetime of 70 years.

Recent guidance from OEHHA recommends a refinement to the standard point estimate approach with the use of age-specific breathing rates and age sensitivity factors (ASFs) to assess risk for susceptible subpopulations such as children. For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify dose for each age group. Once determined, contaminant dose is multiplied by the cancer potency factor in units of inverse dose expressed in milligrams per kilogram per day $(mg/kg/day)^{-1}$ to derive the cancer risk estimate. Therefore, the following dose algorithm was used to accommodate the unique exposures associated with each receptor type.

$$\text{Dose}_{\text{AIR,per age group}} = (C_{air} \times EF \times [\frac{BR}{BW}] \times A \times CF)$$

Where:

| | | |
|---|---|---|
| $\text{Dose}_{AIR}$ | = | dose by inhalation (mg/kg-day), per age group |
| $C_{air}$ | = | concentration of contaminant in air ($\mu g/m^3$) |
| EF | = | exposure frequency (number of days/365 days) |
| BR/BW | = | daily breathing rate normalized to body weight (L/kg-day) |
| A | = | inhalation absorption factor (default = 1) |
| CF | = | conversion factor ($1x10^{-6}$, μg to mg, L to $m^3$) |

The inhalation absorption factor (A) is a unitless factor that is only used if the cancer potency factor included a correction for absorption across the lung. For this assessment, the default value of 1 was used. For residential receptors, the exposure frequency (EF) of 0.96 is used to represent 350 days per year to allow for a two week period away from home each year (OEHHA 2015). This timeline is considered appropriate for potential workplace exposures established by OEHHA (2015). The 95th percentile daily breathing rates (BR/BW), exposure duration (ED), age sensitivity factors (ASFs), and fraction of time at home (FAH) for the various age groups are provided herein:

| Age Groups | BR/BW (L/kg-day) | ED | ASF | FAH |
|---|---|---|---|---|
| Third trimester | 361 | 0.25 | 10 | 0.85 |
| 0-2 age group | 1,090 | 2 | 10 | 0.85 |
| 2-9 age group | 861 | 7 | 3 | 0.72 |
| 2-16 age group | 745 | 14 | 3 | 0.72 |
| 16-30 age group | 335 | 14 | 1 | 0.73 |
| 16-70 age group | 290 | 54 | 1 | 0.73 |

To represent the unique characteristics of student and child care populations, the assessment employed the USEPA's guidance to develop viable dose estimates based on reasonable maximum exposure, defined as the "highest exposure that is reasonably expected to occur" for a given receptor population. Lifetime risk values for child/day care or school populations are adjusted to account for an exposure of 250 days per year for age range of the particular location. For instance, a school which includes programs for preschool through middle school would be calculated for an exposure duration of 12 years (ages 3 years to 14 years). In addition, the calculated risk for children is multiplied by an ASF weighting factor of 10 (for children ages 0 to 2) and 3 (for children ages 2 to 16) to account for early life sensitivity to pollutant exposures (OEHHA, 2015).

To calculate the overall cancer risk, the risk for each appropriate age group is calculated per the following equation:

$$\text{Cancer Risk}_{\text{AIR}} = \text{Dose}_{\text{AIR}} \times \text{CPF} \times \text{ASF} \times \text{FAH} \times \frac{\text{ED}}{AT}$$

Where:

| | | |
|---|---|---|
| $\text{Dose}_{\text{AIR}}$ | = | dose by inhalation (mg/kg-day), per age group |
| CPF | = | cancer potency factor, chemical-specific $(\text{mg/kg-day})^{-1}$ |
| ASF | = | age sensitivity factor, per age group |
| FAH | = | fraction of time at home, per age group (for residential receptors only) |
| ED | = | exposure duration (years) |
| AT | = | averaging time period over which exposure duration is averaged (always 70 years) |

The health risk calculations were performed using CARB's HARP2 Air Dispersion Modeling and Risk Tool (dated 19121). HARP2 includes the current OEHHA toxicity factor database to calculate cancer risks and non-cancer health hazards for various receptor types. The model incorporates OEHHA's methodology and database to calculate health risks based on input parameters including the normalized annual and hourly plot files from the air dispersion model and source emissions.

Incremental cancer risk (expressed in cases per million), and non-cancer chronic and acute health impacts were calculated for the Point of Maximum Impact (PMI), Maximum Exposed Individual Resident (MEIR), Maximum Exposed Individual Worker (MEIW), and the maximum impact at a sensitive receptor. The PMI is the location within the receptor grid which predicts the highest (worst-case) pollutant concentrations and health risks but may or may not be a habitable location. These risks were compared to the significance thresholds in the BAAQMD CEQA Guidelines

For cancer risks due to project operation, the assessment was based on reasonable maximum exposure defined as the "highest exposure that is reasonably expected to occur" for a given receptor population. Per default exposure parameters, it was assumed that the MEIR spent 24 hours/day, 7 days/week, 350 days/year outside their residence. Similarly, the evaluated worker receptors and sensitive receptors were also assumed to spend 24 hours/day, 7 days/week, 250 days/year outside for their workplace or school/child care facility.

The calculated HARP2 output results are provided in Appendix HRA_C.

# 5. Risk Characterizations

## 5.3 NON-CARCINOGENIC HAZARDS

An evaluation was also conducted of the potential non-cancer effects of chronic and acute (1-hour) chemical exposures. Adverse health effects are evaluated by comparing the annual receptor level (ground-level) concentration of each chemical compound with the appropriate reference exposure limit (REL). Available RELs promulgated by OEHHA and incorporated into HARP2 were considered in the assessment.

The hazard index approach was used to quantify non-carcinogenic impacts. The hazard index assumes that chronic and acute sub-threshold exposures adversely affect a specific organ or organ system (toxicological endpoint). Target organs presented in regulatory guidance were used for each discrete chemical exposure. To calculate the hazard index, each chemical concentration or dose is divided by the appropriate toxicity value. This ratio is summed for compounds affecting the same toxicological endpoint. A health hazard is presumed to exist where the total equals or exceeds one.

The calculated HARP2 output results are provided in Appendix HRA_C.

## 5.4 CRITERIA POLLUTANTS

The BAAQMD has incorporated $PM_{2.5}$ (fine particulate matter) into the District's CEQA significance thresholds due to studies that show adverse health impacts from exposure to this pollutant. An incremental increase of greater than 0.3 $\mu g/m^3$ for the annual average $PM_{2.5}$ concentration is considered to be a significant impact (BAAQMD, 2017). Typical sources of $PM_{2.5}$ include construction areas, freeways and highly trafficked surface streets. The emission sources evaluated in the LRDP Update are not considered sources of fine particulates (i.e., natural gas combustion sources, emergency generators, wet laboratories). Therefore, the LRDP Update would not result in significant $PM_{2.5}$ health risk impacts.

# 6. Results and Conclusions

The following section summarizes the results and conclusion for this HRA report.

## 6.1 EXISTING HEALTH RISKS

Table 2 presents the results summary for the existing (2018) scenario at the PMI, MEIR, MEIW, and maximum exposed sensitive receptor. The existing scenario emission sources are described under Section 3. Figure 5, Existing Residential (30-Year) Cancer Risk Contours, identifies the potential health risk from existing (2018) emission sources. Figure 5 depicts two areas where the excess cancer risk from existing emission sources exceeds one chance per million (i.e., areas within the 1.0 cancer risk contour lines) and one area where the excess cancer risk exceeds ten chances per million (i.e., area within the 10.0 in a million contour line).

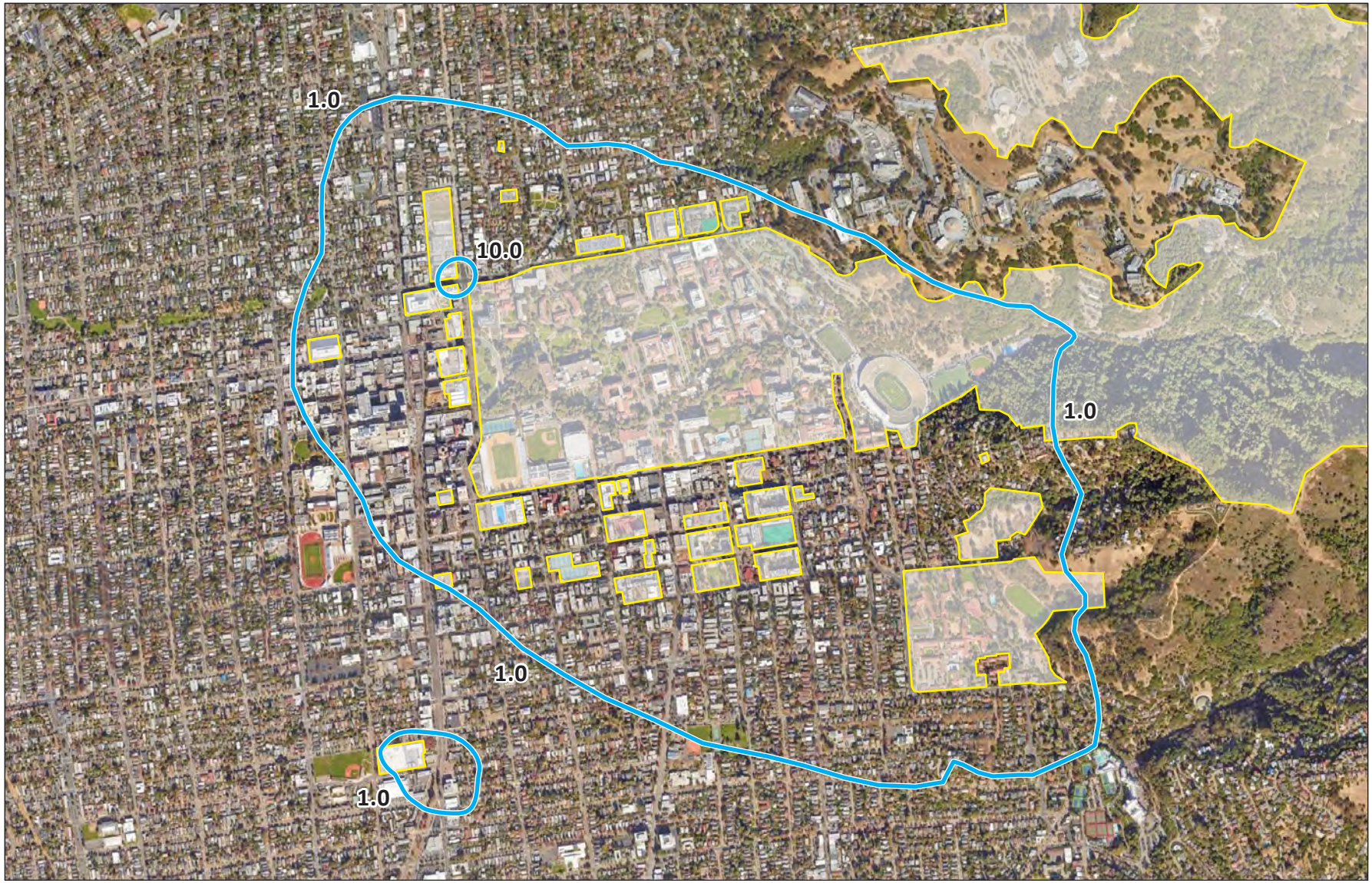
The HRA predicted the PMI location to be along Oxford Street, north of Hearst Avenue and east of Warren Hall. This location is not habitable. Therefore, the risk determination was based on the MEIR location. The HRA predicted the MEIR location to be north of the Central Campus, northeast of the intersection of Hearst Avenue and Spruce Street. The predicted MEIW location is south of the Central Campus along Bancroft Way, west of Telegraph Avenue. The predicted maximum exposed sensitive receptor is the Montessori Family School, north of the Central Campus on Hearst Avenue.

The results in the Table 2 show that the predicted health risks are less than BAAQMD's significance thresholds for the MEIR, MEIW, and maximum exposed sensitive receptor.

Table 2 Existing Operational Health Risk Assessment Results

| Receptor | Cancer Risk (per million) | Chronic Hazard Index | Acute (1-hr) Hazards |
|---|---|---|---|
| Point of Maximum Impact (PMI) | 24.4 | 0.017 | 0.062 |
| Maximum Exposed Individual Resident (MEIR) | 7.2 | 0.016 | 0.081 |
| Maximum Exposed Individual Worker (MEIW) | 0.6 | 0.043 | 0.12 |
| Maximum Exposed Sensitive Receptor (Montessori Family School) | 0.9 | 0.009 | 0.067 |
| BAAQMD Threshold for Individual Sources | 10 | 1.0 | 1.0 |
| Exceeds Threshold? | No | No | No |

Note: Cancer risk calculated using 2015 OEHHA Guidance Manual.
PMI and MEIR cancer risks are calculated for the 30-yr residential scenario. MEIW cancer risk calculated for 25-yr worker scenario. Maximum exposed sensitive receptor cancer risk calculated for 12-year student scenario (ages 3 to 14).
Source: HARP2, Air Dispersion Model and Risk Tool.




Source: PlaceWorks, 2021.

**Note:** Risks expressed as chances per million

0 200
Scale (Feet)

EIR Study Area

Figure 5

Existing Residential (30-Year) Cancer Risk Contours

## 6.2 LRDP UPDATE HEALTH RISKS

Table 3 presents the results summary for the LRDP Update scenario at the PMI, MEIR, MEIW, and maximum exposed sensitive receptor. The LRDP Update would generate TAC emissions from a combination of new, modified, and continuing sources, as described under Section 3. Figure 6, LRDP Update, Residential (30-year) Cancer Risk Contours, identifies the potential cancer risk contours (calculated for the 30-year residential exposure) from emission sources anticipated at buildout of the LRDP Update (existing sources plus additional or modified sources resulting from LRDP update). Similar to Figure 5, Figure 6 depicts two areas where the excess cancer risk from all emission sources exceeds one chance per million (i.e., areas within the 1.0 cancer risk contour lines) and one area where the excess cancer risk exceeds ten chances per million (i.e., area within the 10.0 in a million contour line).

The HRA predicted the locations for the PMI, MEIR, MEIW, and maximum exposed sensitive receptor to be the same as for the existing scenario. Since the PMI location is not habitable, the risk determination was based on the MEIR location.

Table 3 LRDP Update Operational Health Risk Assessment Results

| Receptor | Cancer Risk (per million) | Chronic Hazard Index | Acute (1-hr) Hazards |
|---|---|---|---|
| Point of Maximum Impact (PMI) | 24.6 | 0.064 | 0.20 |
| Maximum Exposed Individual Resident (MEIR) | 7.3 | 0.018 | 0.084 |
| Maximum Exposed Individual Worker (MEIW) | 0.7 | 0.052 | 0.12 |
| Maximum Exposed Sensitive Receptor (Montessori Family School) | 0.9 | 0.011 | 0.072 |
| BAAQMD Threshold for Individual Sources | 10 | 1.0 | 1.0 |
| Exceeds Threshold? | No | No | No |

Note: Cancer risk calculated using 2015 OEHHA Guidance Manual.
PMI and MEIR cancer risks are calculated for the 30-yr residential scenario. MEIW cancer risk calculated for 25-yr worker scenario. Maximum exposed sensitive receptor cancer risk calculated for 12-year student scenario (ages 3 to 14).
Source: HARP2, Air Dispersion Model and Risk Tool.

The results in Table 3 show that the predicted health risks are less than BAAQMD's significance thresholds for the MEIR, MEIW, and maximum exposed sensitive receptor. At the MEIR, DPM emissions from the emergency generators accounts for approximately 80.3 percent of the total health risks. Emissions from the cogeneration plant account for approximately 10 percent, laboratory emissions also account for approximately 9.6 percent, and emissions from the Hazardous Materials Facility account for the remaining 0.1 percent of the total MEIR health risks.

The cogeneration plant represents the primary source of natural gas combustion at UC Berkeley. Implementation of the Campus Energy Plan would result in a reduction in natural gas combustion onsite (see DEIR, Table 5.2-13). Therefore, future health risks from the cogeneration plant emissions would be reduced with implementation of the Campus Energy Plan compared to the risks provided in Table 3, which are already below BAAQMD's significance thresholds.

**Point of Maximum Impact (PMI)**
**Maximum Exposed Individual Receptor (MEIR)**
**Maximum Exposed Individual Worker (MEIW)**
**Maximum Exposed Sensitive Receptor**

EIR Study Area

0 200
Scale (Feet)

**Note:** Risks expressed as chances per million

Figure 6

LRDP Update, Residential (30-Year) Cancer Risk Contours

Source: PlaceWorks, 2021.

## 6.3 CUMULATIVE ANALYSIS

Additional major sources of TACs in the vicinity of UC Berkeley include emissions from Lawrence Berkeley National Laboratory (LBNL), mobile sources such as freeways (I-80, I-580, SR-24), railroads, and high-volume roadways (> 30,000 average daily trips). BAAQMD provides screening tools to assess cancer risks (70-year residential exposure) and fine particulate matter ($PM_{2.5}$) concentrations within the air basin (BAAQMD, 2020c).

The cumulative health risks values were determined by adding the health risk values from the LRDP Update to the screening-level health risk values for several additional major emission sources (see Table 4). The cumulative health risk values are less than the BAAQMD threshold of 100 in a million for a lifetime cancer risk and less than the non-carcinogenic chronic or acute hazard index of 10.0. Additionally, the $PM_{2.5}$ concentrations for all emission sources are below the cumulative BAAQMD significance threshold of 0.8 $\mu g/m^3$.

Table 4 Cumulative Health Risk Results

| Receptor | Cancer Risk (per million) | Chronic Hazard Index | Acute Hazard Index | $PM_{2.5}$ ($\mu g/m^3$) |
|---|---|---|---|---|
| LRDP Update[1] | 7.3 | 0.018 | 0.084 | n/a |
| Construction: Housing Project 1 | 1.1 | 0.004 | n/a | 0.007 |
| Construction: Housing Project 2 | 5.2 | 0.010 | n/a | 0.04 |
| Lawrence Berkeley National Laboratory[2] | 8.0 | 0.1 | 0.1 | n/a |
| Freeways[3] | 3.7 | <1.0 | <1.0 | 0.09 |
| Railroads[3] | 1.3 | <1.0 | <1.0 | 0.002 |
| Major Surface Streets[3] | 46.5 | <1.0 | <1.0 | 0.17 |
| Total – All Sources | 73.1 | 0.13 | 0.18 | 0.31 |
| BAAQMD Threshold – Cumulative | 100 | 10.0 | 10.0 | 0.8 |
| Exceeds Threshold? | No | No | No | No |

Note: micrograms per cubic meter = µg/m3; $PM_{2.5}$ – fine particulate matter; Cancer risk calculated residential receptors using 2015 Office of Environmental Health Hazard Assessment Health Risk Assessment Guidance Manual.
Sources:
1 HARP2, Air Dispersion Model and Risk Tool.
2 Lawrence Berkeley National Laboratory (LBNL), EIR for 2006 LRDP, Section IV.B. Air Quality. Dated January 22, 2007. Prepared by ESA.
3 BAAQMD, Cancer Risk/PM2.5 Screening-Level Raster Files for Highway, Railroad, and Major Streets (2020c).

It should be noted that the maximum health risk values in Table 4 for the various emission sources were determined at different locations than the MEIR location for the LRDP Update HRA. For instance, the MEIR location for the LRDP Update analysis is along Hearst Avenue (see Figure 6), whereas the maximum exposed residential receptor for the Construction of Housing Project #1 is along Berkeley Way (DEIR, Section 5.2.3, Impact Discussion, Impact AIR-3). It is likely that the summed cumulative health risks at any one location would be less than the summed total provided in Table 4, as pollutant concentrations decrease with distance from the emission source. Therefore, the project would not result in cumulative health risk impacts since the project's health risks when summed with the screening-level risks from surrounding major emission sources would not exceed BAAQMD's cumulative significance thresholds.

# 6. Results and Conclusions

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# 7. References


Bay Area Air Quality Management District (BAAQMD), 2020a. Major Facility Review Permit, issued to University of California, Berkeley Facility #A0059 on August 31, 2020.

———. 2020b. Toxic Air Contaminant (TAC) Emission Factor Guidelines, Appendix A, Default TAC Emission Factors for Specific Source Categories. Dated August 2020.

———. 2020c. Raster files for updated screening level health risk values for highways, railroad, and major roadways.

———. 2017. *California Environmental Quality Act Air Quality Guidelines.*

———. 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards.* Version 3.0. Dated May 2012.

California Air Resources Board (CARB). 2020. *Meteorological Files.* Access on October 20, 2020 at https://ww2.arb.ca.gov/resources/documents/harp-aermod-meteorological-files.

———. 2019. Hotspots Analysis and Report Program (HARP2), Air Dispersion Modeling and Risk Tool (ADMRT), dated 19121 – May 1, 2019.

ERM West, Inc. (ERM). 2009. *Health Risk Assessment Update, University of California, Berkeley*. Dated November 2009.

Montessori Family School. 2020. School Website, access on December 14, 2020 at https://www.montessorifamily.com/lp-our-programs?utm_source=google&utm_medium=cpc&utm_campaign=open.

Lawrence Berkeley National Laboratory (LBNL), 2007. Environmental Impact Report for 2006 LRDP, Section IV.B. Air Quality. Prepared by ESA, dated January 22, 2007.

Office of Environmental Health Hazard Assessment (OEHHA). 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments.* Dated February 2015.

United States Environmental Protection Agency (USEPA). 2018. AP42 Emission Factors, Section 4.7.1.1 Solvent Storage and Handling, Fugitive Emissions from Loading (VOCs), accessed on December 14, 2020 at https://www3.epa.gov/ttn/chief/ap42/ch04/final/c4s07.pdf.

_____. 2011. *Exposure Factors Handbook 2011 Edition (Final)*. EPA/600/R-09/052F, 2011.

_____. 2005. *Guideline on Air Quality Models* (Revised). EPA-450/2-78-027R.

# 7. References

University of California, Berkeley, 2017. *Joint Chemistry and Engineering Building,* Detailed Project Program Report. Final Draft, dated January 19, 2017. Prepared by SmithGroup JJR.

_____. 2003. Central Campus Health Risk Assessment Update for 2020 LRDP Draft EIR.

Yorke Engineering, LLC, 2018. Health Risk Assessment for Woo Hon Fai Hall. Dated February 2018.

# Appendix HRA_A. Emission Rate Calculations

# UC Berkeley Emergency Generator Emission Rates

| Source Number (name-loc.) | | Engine Make | Model Year | Rated bhp | Stack Ht. abv. grade (m)* | Stack diam. (m) | Exh. temp. (K) | Part. emissions factors g/hp/hr D-2 Test Cycle | Exit Velocity (m/s) | Load Factor | Annual Testing Hours[1] | Annualized Emission Rate (g/s) | Annual (lb/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Existing Engines** | | | | | | | | | | | | | |
| 62 Central Dining | Off-Campus | Caterpillar | 2001 | 764 | 4.6 | 0.13 | 800 | 0.1 | 146.0 | 25% | 13 | 7.874E-06 | 5.474E-01 |
| 63 Barker | | Caterpillar | 2001 | 765 | 4.6 | 0.13 | 800 | 0.05 | 152.0 | 25% | 13 | 3.942E-06 | 2.741E-01 |
| 64 Birge | | Caterpillar | 2002 | 117 | 3.0 | 0.08 | 817 | 0.1 | 58.5 | 25% | 13 | 1.206E-06 | 8.383E-02 |
| 105 Haas Pavilion | | Cummins | 1998 | 116 | 4.6 | 0.23 | 811 | 1 | 70.1 | 25% | 13 | 1.195E-05 | 8.311E-01 |
| 106 VLSB | | Detroit Diesel | 1992 | 116 | 30.5 | 0.20 | 811 | 1 | 70.1 | 25% | 13 | 1.195E-05 | 8.311E-01 |
| 107 Koshland | | Cummins | 1987 | 805 | 0.0 | 0.18 | 811 | 1 | 70.1 | 25% | 13 | 8.296E-05 | 5.768E+00 |
| 108 Weill (former LSBA) | | Cummins | 1986 | 805 | 7.6 | 0.18 | 811 | 1 | 70.1 | 25% | 13 | 8.296E-05 | 5.768E+00 |
| 109 Tan | | Detroit Diesel | 1996 | 671 | 3.0 | 0.15 | 811 | 0.4 | 70.1 | 25% | 13 | 2.766E-05 | 1.923E+00 |
| 110 NWAF- S | | Volva Penta | 1999 | 402 | 4.6 | 0.10 | 811 | 0.4 | 70.1 | 25% | 13 | 1.657E-05 | 1.152E+00 |
| 111 Moffitt Library | | Ford | 1995 | 385 | 3.0 | 0.11 | 811 | 1 | 70.1 | 25% | 13 | 3.968E-05 | 2.759E+00 |
| 112 Res 1-1W | Off-Campus | Caterpillar V-8 | 1993 | 335 | 3.0 | 0.10 | 811 | 1 | 70.1 | 25% | 13 | 3.452E-05 | 2.400E+00 |
| 113 Res 1-2E | Off-Campus | Caterpillar V-8 | 1995 | 335 | 3.0 | 0.10 | 811 | 1 | 70.1 | 25% | 13 | 3.452E-05 | 2.400E+00 |
| 114 Res 2-1W | Off-Campus | Caterpillar V-8 | 1995 | 335 | 3.0 | 0.10 | 811 | 1 | 70.1 | 25% | 13 | 3.452E-05 | 2.400E+00 |
| 115 Res 2-2E | Off-Campus | Caterpillar V-8 | 1995 | 335 | 3.0 | 0.10 | 811 | 1 | 70.1 | 25% | 13 | 3.452E-05 | 2.400E+00 |
| 116 Tang | Off-Campus | Detroit Diesel | 1995 | 335 | 4.6 | 0.10 | 811 | 1 | 70.1 | 25% | 13 | 3.452E-05 | 2.400E+00 |
| 117 Minor | | Detroit Diesel | 1992 | 335 | 3.0 | 0.10 | 811 | 1 | 70.1 | 25% | 13 | 3.452E-05 | 2.400E+00 |
| 118 NWAF-N | | Allis-Chalmers | 1999 | 335 | 4.6 | 0.13 | 811 | 0.4 | 70.1 | 25% | 13 | 1.381E-05 | 9.601E-01 |
| 120 Sproul | | John Deere | 1981 | 169 | 3.0 | 0.08 | 811 | 1 | 70.1 | 25% | 13 | 1.742E-05 | 1.211E+00 |
| 121 I- House | Off-Campus | Allis-Chalmers | 1977 | 168 | 3.0 | 0.08 | 811 | 1 | 70.1 | 25% | 13 | 1.731E-05 | 1.204E+00 |
| 123 Doe Library | | Cummins | 1991 | 168 | 3.0 | 0.08 | 811 | 1 | 70.1 | 25% | 13 | 1.731E-05 | 1.204E+00 |
| 125 EHS/HMF | | Caterpillar | 1999 | 166 | 3.0 | 0.08 | 811 | 0.4 | 70.1 | 25% | 13 | 6.843E-06 | 4.758E-01 |
| 126 Chavez (former GBCR) | | Cummins | 1998 | 107 | 0.0 | 0.08 | 811 | 0.4 | 70.1 | 25% | 13 | 4.411E-06 | 3.067E-01 |
| 128 Donner | | John Deere | 1994 | 67 | 3.0 | 0.05 | 811 | 1 | 70.1 | 25% | 13 | 6.905E-06 | 4.801E-01 |
| 129 Birge portable | | Cummins | 1984 | 67 | 2.4 | 0.05 | 811 | 1 | 70.1 | 25% | 13 | 6.905E-06 | 4.801E-01 |
| 130 Hildebrand | | Cummins | 2002 | 277 | 2.4 | 0.08 | 815 | 0.15 | 134.5 | 25% | 13 | 4.282E-06 | 2.977E-01 |
| 131 Haas Rec. Sports CEV | | Caterpillar | 2002 | 116 | 1.8 | 0.08 | 817 | 0.1 | 58.5 | 25% | 13 | 1.195E-06 | 8.311E-02 |
| 132 Mulford | | Caterpillar | 2002 | 116 | 1.8 | 0.08 | 817 | 0.1 | 58.5 | 25% | 13 | 1.195E-06 | 8.311E-02 |
| 133 HMMB | | Cummins | 2002 | 955 | 3.0 | 0.13 | 769 | 0.4 | 135.1 | 25% | 13 | 3.937E-05 | 2.737E+00 |
| 145 STNL, Stanley Hall | | Caterpillar | 2003 | 2848 | 31.39 | 0.61 | 725.93 | 0.15 | 25.01 | 25% | 13 | 4.403E-05 | 3.061E+00 |
| 146 UNDHLENG Underhill Parking | Off-Campus | Cummins | 2005 | 750 | 10.67 | 0.25 | 705.37 | 0.15 | 24.20 | 25% | 13 | 1.159E-05 | 8.061E-01 |
| 143 RES1ENG Residence Hall 1 | Off-Campus | Caterpillar | 2004 | 382 | 2.74 | 0.15 | 807.59 | 0.15 | 56.20 | 25% | 13 | 5.905E-06 | 4.106E-01 |
| 142 RES2ENG Residence Hall 2 | Off-Campus | Caterpillar | 2004 | 382 | 2.74 | 0.15 | 807.59 | 0.15 | 56.20 | 25% | 13 | 5.905E-06 | 4.106E-01 |
| 65 RES3ENG Residence Hall 3 | Off-Campus | Cummins | 2003 | 1135 | 2.13 | 0.13 | 810.93 | 0.4 | 59.08 | 25% | 13 | 4.679E-05 | 3.253E+00 |
| 148 CITENG Sutardaj Dai Hall | | Caterpillar | 2007 | 2206 | 24.99 | 0.2 | 679.54 | 0.15 | 164.20 | 25% | 13 | 3.410E-05 | 2.371E+00 |
| 149 LKS La Ki Shing Center | | Detroit Diesel | 2008 | 2561 | 1.27 | 0.66 | 738.15 | 0.15 | 17.80 | 25% | 13 | 3.959E-05 | 2.752E+00 |
| 144 WAR Warren Hall | | Kohler | 2004 | 2936 | 13.72 | 0.07 | 723.15 | 0.4 | 21.46 | 25% | 13 | 1.210E-04 | 8.415E+00 |
| **Additional Emergency Generators [2]** | | | | | | | | | | | | | |
| 122 SSSADD, Silver Space Sciences Add | Hill Campus | John Deere | 1998 | 168 | 2.44 | 0.101 | 811 | 0.40 | 70.10 | 25% | 13 | 6.925E-06 | 4.815E-01 |
| MCCN, McCone | | N/A | N/A | 50 | 2.13 | 0.127 | 810.83 | 0.15 | 59.08 | 25% | 13 | 7.729E-07 | 5.374E-02 |
| 4th Street (Campus Shared Services) | Off-Campus | N/A | N/A | 166 | 2.44 | 0.101 | 811 | 0.15 | 70.10 | 25% | 13 | 2.566E-06 | 1.784E-01 |
| CH_BOW Channing-Bowditch | Off-Campus | N/A | N/A | 50 | 2.44 | 0.101 | 811 | 0.15 | 70.10 | 25% | 13 | 7.729E-07 | 5.374E-02 |
| Carleton | Off-Campus | N/A | N/A | 300 | 2.44 | 0.1 | 811 | 0.15 | 33.53 | 25% | 13 | 4.638E-06 | 3.224E-01 |
| GOLDBEAR, Golden Bear Center | Off-Campus | N/A | N/A | 123 | 2.44 | 0.101 | 811 | 0.15 | 70.10 | 25% | 13 | 1.901E-06 | 1.322E-01 |
| CLKERR, Clark Kerr | Clark Kerr Campus | N/A | N/A | 277 | 3.05 | 0.15 | 811 | 0.15 | 40.46 | 25% | 13 | 4.282E-06 | 2.977E-01 |
| 150 Barrows | | Cummins | 2010 | 250 | 2.44 | 0.08 | 768.71 | 0.15 | 29.48 | 25% | 13 | 3.865E-06 | 2.687E-01 |
| 152 IGI_GEN, Innovative Genomics Inst. | Off-Campus | AB Volvo | 2010 | 904 | 32.92 | 0.3 | 734.26 | 0.15 | 30.67 | 25% | 13 | 1.397E-05 | 9.716E-01 |
| 153 MAXMC, Maximino Martinez Commons | Off-Campus | John Deere | 2010 | 197 | 2.44 | 0.1 | 853.15 | 0.15 | 57.27 | 25% | 13 | 3.045E-06 | 2.117E-01 |
| 154 EBRCSA, East Bay Reg. Comm. Sys. Auth. | Hill Campus | John Deere | 2011 | 97 | 2.44 | 0.06 | 797.59 | 0.3 | 81.46 | 25% | 13 | 2.999E-06 | 2.085E-01 |
| 155 MEMSTAD, Memorial Stadium | Hill Campus | Cummins | 2011 | 1490 | 3.66 | 0.3 | 749.82 | 0.07 | 50.34 | 25% | 13 | 1.075E-05 | 7.473E-01 |
| 156 Campbell Hall | | John Deere | 2013 | 197 | 1.78 | 0.09 | 853.15 | 0.01 | 70.70 | 25% | 13 | 2.030E-07 | 1.412E-02 |
| 157 ESH_GEN, Eshleman MLK | | John Deere | 2013 | 538 | 7.62 | 0.2 | 719.26 | 0.015 | 39.80 | 25% | 13 | 8.317E-07 | 5.782E-02 |
| 158 Berkeley Art Museum | Off-Campus | Perkins | 2013 | 762 | 3.23 | 0.15 | 823.15 | 0.07 | 105.63 | 25% | 13 | 5.497E-06 | 3.822E-01 |
| 160 LAWHOS, Lawrence Hall of Science | Hill Campus | Caterpillar | 2014 | 480 | 2.44 | 0.101 | 811 | 0.01 | 70.10 | 25% | 13 | 4.947E-07 | 3.439E-02 |
| 161 Portable Edward Track Generator | | Isuzu | 2007 | 98.6 | 2.44 | 0.101 | 811 | 0.3 | 70.10 | 25% | 13 | 3.048E-06 | 2.119E-01 |
| 162 CHOU_GEN, Chou Hall | | Cummins | 2015 | 324 | 1.98 | 0.1 | 703.71 | 0.01 | 66.40 | 25% | 13 | 3.339E-07 | 2.321E-02 |
| 163 BWWEST, Berkeley Way West | Off-Campus | Caterpillar | 2016 | 762 | 4.57 | 0.15 | 804.26 | 0.01 | 96.28 | 25% | 13 | 7.853E-07 | 5.460E-02 |
| 200 Co-Generation Plant | | GM | 1985 | 950 | 2.44 | 0.1 | 811 | 1 | 70.10 | 25% | 13 | 9.790E-05 | 6.807E+00 |
| ENG_P1, Portable Engine, Poultry Yard | Hill Campus | John Deere | 2006 | 113 | 2.44 | 0.101 | 811 | 0.22 | 70.10 | 25% | 13 | 2.562E-06 | 1.781E-01 |
| ENG_FP, Fire Pump | Hill Campus | Detroit Diesel | 1996 | 73 | 2.44 | 0.101 | 811 | 1 | 70.10 | 25% | 26 | 1.505E-05 | 1.046E+00 |
| **LRDP Emergency Generators [2]** | | | | | | | | | | | | | |
| 164 Woo Han Fai Hall [3] | Off-campus, cumulative | Caterpillar | C15 | 762 | 9.6774 | 0.183 | 805.4 | 0.01 | 40.95 | 25% | 13 | 7.853E-07 | 5.460E-02 |
| ENG_CP1, Heathcock Hall | CP1, Chemistry | N/A | N/A | 762 | 3.05 | 0.183 | 805.4 | 0.01 | 40.95 | 25% | 13 | 7.853E-07 | 5.460E-02 |
| ENG_CE15, Housing Project 1 | Off-campus | N/A | N/A | 500 | 54.864 | 0.101 | 811 | 0.01 | 70.10 | 25% | 13 | 5.153E-07 | 3.583E-02 |
| ENG_CE16, Housing Project 2 | Off-campus | N/A | N/A | 500 | 2.44 | 0.101 | 811 | 0.01 | 70.10 | 25% | 13 | 5.153E-07 | 3.583E-02 |
| ENG_CP11, 'Data Hub (Tolman Hall site) | CP11, Hearst-MacFarlane | N/A | N/A | 762 | 3.05 | 0.183 | 805.4 | 0.01 | 40.95 | 25% | 13 | 7.853E-07 | 5.460E-02 |
| ENG_CE11, Fulton-Bancroft Housing | CE11, Fulton-Bancroft | N/A | N/A | 500 | 2.44 | 0.101 | 811 | 0.01 | 70.10 | 25% | 13 | 5.153E-07 | 3.583E-02 |
| ENG_P2, Future Portable Generator | | Isuzu | 2011 | 98 | 2.44 | 0.101 | 811 | 0.01 | 70.10 | 25% | 13 | 1.010E-07 | 7.022E-03 |

[1] Testing frequency once or twice a month for all generators for 30 minutes, plus 1 hour load-bank testing per year. Assumed 13 hours of maintenance & operational testing per uni

## LABORATORY BUILDINGS (EXISTING)

| Building | Lab Type | Wet Lab Space (SF) | Existing Bldg (SF) | Proposed Bldg (SF) | Net Increase % | Source |
|---|---|---|---|---|---|---|
| 2251 College, Arch. Research Facility | III | 2,962 | | | | 2 |
| Barker Hall | II | 20,461 | | | | 1 |
| Campbell Hall | III | 14,296 | | | | 2 |
| Cory Hall | III | 9,970 | | | | 1 |
| Davis Hall | III | 56,300 | | | | 1 |
| Donner Lab | II | 13,674 | | | | 2 |
| Etcheverry Hall | III | 9,193 | | | | 1 |
| Genetics & Plant Biology Buidling | II | 8,592 | | | | 2 |
| Gillman Hall | I | 6,797 | | | | 1 |
| Birge Hall | III | 19,275 | | | | 1 |
| LeConte Hall | III | 17,039 | | | | 1 |
| Hesse Hall | III | 12,648 | | | | 1 |
| McCone Hall | III | 7,828 | | | | 1 |
| O'Brien Hall | III | 8,811 | | | | 1 |
| Hildebrand Hall | I | 24,348 | | | | 1 |
| Giauque Hall | I | 7,372 | | | | 1 |
| Minor Hall | III | 4,710 | | | | 1 |
| Minor Hall Addition | III | 821 | | | | 1 |
| Hearst Memorial Mining Building | III | 31,644 | | | | 2 |
| Hilgard Hall | II | 16,748 | | | | 1 |
| Innovative Genomics Institute (Energy Biosciences Building) | II | 40,900 | | | | 3 |
| Koshland Hall | II | 49,455 | | | | 1 |
| Anthropology and Art Practice | III | 8,047 | | | | 2 |
| Li Ka Shing Center | II | 31,066 | | | | 3 |
| Latimer Hall | I | 54,524 | | | | 1 |
| Lewis Hall | I | 14,342 | | | | 1 |
| Weill Hall | II | 37,766 | | | | 1 |
| Morgan Hall | II | 12,119 | | | | 1 |
| Mulford Hall | II | 5,461 | | | | 1 |
| Northwest Animal Facility | II/III | 2,360 | | | | 1 |
| Silver Space Sciences | III | 23,790 | | | | 2 |
| Stanley Hall | III | 81,200 | | | | 3 |
| Sutardja Dai Hall | III | 31,066 | | | | 3 |
| Tan Hall | I | 23,518 | | | | 1 |
| Valley Life Sciences Building | II | 24,351 | | | | 1 |
| Oxford Tract/South Greenhouse | II | 2,949 | | | | 3 |
| Wellman Hall | II | 6,356 | | | | 1 |
| Total Existing | | **742,759** | | | | |

## LRDP Proposed Wet Laboratories

| | Building | Lab Type | Wet Lab Space | Existing Bldg | Proposed Bldg | Net Increase | Source |
|---|---|---|---|---|---|---|---|
| CP1 | Chemistry Expansion (Heathcock Hall) | I | 30,096 | 0 | 143,000 | | 7 |
| CP10 | Cory Hall | III | 11,274 | 206,054 | 233,000 | 13% | 5 |
| CP12 | Davis Hall | III | 56,379 | 137,806 | 138,000 | 0.1% | 5 |
| CP13 | Donner Lab (Joint Chemistry & Engineering Buildings) | I | 35,688 | | | | 6 |
| CP20 | Hesse/O'Brien Replacement | III | 68,795 | 82,660 | 265,000 | 221% | 5 |
| CP21 | Koshland Hall Redevelopment | II | 41,507 | 153,700 | 129,000 | -16% | 5 |
| CP22 | Anthropology and Art Practice-Bancroft Redevelopment | III | 23,556 | 156,800 | 459,000 | 193% | 5 |
| CP23 | Lewis Hall Redevelopment | I | 30,727 | 68,146 | 146,000 | 114% | 5 |
| CP24 | McCone Hall Redevelopment | III | 9,246 | 123,612 | 146,000 | 18% | 5 |
| CP26 | Morgan Hall Redevelopment | II | 28,074 | 56,637 | 131,200 | 132% | 5 |
| WHF | Woo Han Fai Hall, Bakar Bioenginuity Hub | II | 21,000 | | | | 4 |
| | Total LRDP | | **356,342** | 985,415 | 1,790,200 | | |

[1] 2003 LRDP Central Campus HRA (URS).

[2] UCB provided "Space Level Report", assuming wet lab space is equal to "Research Laboratory and Studio", which is conservative as wet lab space is a fraction of research lab space, which varies per building.

[3] 2009, HRA Update for UC Berkeley (ERM).

[4] 2018, HRA for Woo Hon Fai Hall (Yorke).

[5] LRDP EIR Project Description, Table 3-1.

[6] 2017, Detailed Project Program Report for Joint Chemistry and Engineering Building, Table 2.5-1.

[7] CP1 wet lab space estimated as the fraction of lab space for similar lab type (i.e., Lewis Hall, Lab Type I, 21% of bldg SF as wet lab) multiplied by the proposed bldg SF of 142,200 SF.

# LABORATORY EMISSION FACTORS

grams per second per square foot of wet laboratory floor space, from 2000 UC Berkeley Baseline HRA

| Chemical | Annual Emissions | | | Max Hourly Emissions | | |
|---|---|---|---|---|---|---|
| | (g/s per SF) | | | | | |
| Lab Type | I | II | III | I | II | III |
| Benzene | 2.25E-09 | 1.05E-10 | 7.32E-11 | 1.17E-08 | 5.44E-10 | 3.79E-10 |
| Carbon tetrachloride | 2.01E-10 | 6.18E-10 | 4.81E-10 | 1.04E-09 | 3.20E-09 | 2.49E-09 |
| Chloroform | 2.73E-08 | 8.27E-09 | 9.80E-10 | 1.41E-07 | 4.29E-08 | 5.07E-09 |
| Dimethyl formamide | 5.50E-10 | 3.11E-10 | 3.32E-12 | 2.85E-09 | 1.61E-09 | 1.72E-11 |
| Dioxane, 1,4- | 2.61E-09 | 1.97E-10 | 2.28E-11 | 1.35E-08 | 1.02E-09 | 1.18E-10 |
| Epichlorohydrin | 2.46E-11 | 3.22E-13 | 0.00E+00 | 1.27E-10 | 1.67E-12 | 0.00E+00 |
| Formaldehyde | 9.35E-11 | 7.77E-09 | 9.83E-10 | 4.84E-10 | 4.03E-08 | 5.09E-09 |
| Glutaraldehyde | 4.00E-11 | 2.44E-10 | 9.41E-11 | 2.07E-10 | 1.26E-09 | 4.87E-10 |
| n-Hexane | 1.75E-10 | 4.21E-10 | 8.07E-10 | 9.07E-10 | 2.18E-09 | 4.18E-09 |
| Hydrazine | 1.19E-11 | 6.77E-12 | 5.87E-13 | 6.14E-11 | 3.51E-11 | 3.04E-12 |
| Hydrogen chloride (HCL) | 9.45E-10 | 2.00E-08 | 8.54E-09 | 4.90E-09 | 1.04E-07 | 4.42E-08 |
| Hydrogen fluoride (HF) | 3.20E-12 | 1.51E-10 | 1.79E-09 | 1.66E-11 | 7.81E-10 | 9.27E-09 |
| Isopropyl alcohol (IPA) | 3.68E-09 | 2.52E-08 | 1.75E-08 | 1.91E-08 | 1.31E-07 | 9.07E-08 |
| Methanol | 1.16E-07 | 8.95E-08 | 4.39E-08 | 5.98E-07 | 4.64E-07 | 2.27E-07 |
| Methyl bromide | 2.91E-10 | 6.26E-08 | 0.00E+00 | 1.51E-09 | 3.24E-07 | 0.00E+00 |
| Methylene chloride (DCM) | 1.07E-07 | 1.24E-09 | 2.84E-10 | 5.56E-07 | 6.41E-09 | 1.47E-09 |
| Phosgene | 7.74E-11 | 0.00E+00 | 0.00E+00 | 4.01E-10 | 0.00E+00 | 0.00E+00 |
| Tetrachloroethylene (Perc) | 9.83E-11 | 5.74E-12 | 4.90E-11 | 5.09E-10 | 2.97E-11 | 2.54E-10 |
| Toluene | 7.73E-09 | 7.75E-10 | 4.11E-10 | 4.01E-08 | 4.01E-09 | 2.13E-09 |
| Trichloroethane (1,1,1-) | 2.12E-11 | 2.37E-11 | 1.37E-09 | 1.10E-10 | 1.23E-10 | 7.12E-09 |
| Trichloroethylene (TCE) | 0.00E+00 | 6.25E-11 | 3.91E-10 | 0.00E+00 | 3.24E-10 | 2.02E-09 |
| Triethylamine | 6.54E-10 | 1.32E-10 | 0.00E+00 | 3.39E-09 | 6.81E-10 | 0.00E+00 |
| Xylenes | 2.70E-10 | 1.54E-09 | 8.42E-10 | 1.40E-09 | 7.99E-09 | 4.36E-09 |

| | |
|---|---|
| I | Chemistry, ChemE |
| II | General Biological Sciences |
| III | Physical Sciences/Other (Eng, Geo, Phys) |

## ANNUAL LABORATORY EMISSIONS BY BUILDING UNDER EXISTING CONDITIONS

| Chemical | 2251 College Ave, Arch. Research Facility | Barker Hall | Campbell Hall | Cory Hall | Davis Hall | Donner Lab | Etcheverry Hall | Genetics & Plant Biology Building | Gillman/ Birge/ LeConte Hall | Hesse/ McCone/ O'Brien | Hildebrand/ Giauque Hall | Hearst Memorial Mining Building | Hilgard Hall | IGI (EBB) | Koshland Hall | Anthropology and Art Practice | Li Ka Shing Center | Latimer Hall | Lewis Hall | Weill Hall (former LSA) | Minor Hall/Minor Addition | Morgan Hall | Mulford Hall | Northwest Animal Facilty | Silver Space Sciences | Stanley Hall | Sutardja Dai Hall | Tan Hall | Valley Life Sciences Building | Oxford Tract/ South Greenhouse | Wellman Hall |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Stacks per buildings | 1 | 5 | 1 | 1 | 1 | 1 | 1 | 1 | 13 | 1 | 5 | 1 | 1 | 1 | 4 | 1 | 3 | 8 | 9 | 7 | 1 | 6 | 1 | 2 | 1 | 10 | 4 | 4 | 4 | 1 | 1 |
| **Lab Type** | III | II | III | III | III | II | III | II | I, III, III | III | I | III | II | II | II | III | II | I | I | II | III | II | II | II/III | III | III | III | I | II | II | II |
| **Wet Lab Square Footage (SF)** | 2,962 | 20,461 | 14,296 | 9,970 | 56,300 | 13,674 | 9,193 | 8,592 | 43,111 | 29,287 | 31,720 | 31,644 | 16,748 | 40,900 | 49,455 | 8,047 | 31,066 | 54,524 | 14,342 | 37,766 | 5,531 | 12,119 | 5,461 | 2,360 | 23,790 | 81,200 | 31,066 | 23,518 | 24,351 | 2,949 | 6,356 |
| | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** |
| Benzene | 1.51E-02 | | | 5.07E-02 | 2.86E-01 | | 4.68E-02 | | 2.42E-02 | 1.49E-01 | 9.92E-01 | 1.61E-01 | 1.22E-01 | 2.99E-01 | 9.03E-02 | | 7.57E-02 | 1.07E+00 | 2.49E-01 | 3.94E-02 | | 1.48E-02 | 3.99E-02 | 8.62E-03 | | 4.13E-02 | | 9.20E-01 | 4.45E-02 | | |
| Carbon tetrachloride | | | | 3.33E-01 | | | | | 1.11E-01 | 9.80E-01 | 8.84E-02 | 1.06E+00 | 7.19E-01 | | 5.31E-01 | | | 9.50E-02 | 2.22E-02 | 2.32E-01 | | 8.68E-02 | | | 7.96E-01 | 2.72E-01 | | 8.20E-02 | 2.61E-01 | | 2.73E-01 |
| Chloroform | 2.02E-01 | 2.35E+00 | 9.74E-01 | 6.79E-01 | 3.83E+00 | 7.86E+00 | 5.29E+00 | 4.94E+00 | 1.91E+00 | 1.99E+00 | 1.20E+01 | 2.16E+00 | 9.63E+00 | 2.35E+01 | 7.11E+00 | | 5.96E+00 | 1.29E+01 | 3.02E+00 | 3.10E+00 | 3.77E-01 | 1.16E+00 | 3.14E+00 | | 1.62E+00 | 5.53E-01 | 5.29E-01 | 1.12E+01 | 3.50E+00 | 1.70E+00 | 3.66E+00 |
| Dimethyl formamide | | 8.85E-02 | | 2.30E-03 | 1.30E-02 | 2.96E-01 | 1.99E-01 | | 1.27E-01 | 6.75E-03 | 2.42E-01 | 7.29E-03 | 3.62E-01 | 8.84E-01 | 2.67E-01 | 1.85E-03 | 2.24E-01 | 2.60E-01 | 6.09E-02 | 1.17E-01 | 1.27E-03 | 4.37E-02 | 1.18E-01 | | 5.48E-03 | 1.87E-03 | | 2.25E-01 | 1.32E-01 | | |
| Dioxane, 1,4- | | 5.59E-02 | | 1.58E-02 | 8.91E-02 | | 1.26E-01 | | 4.53E-02 | 4.63E-02 | 1.15E+00 | 5.01E-02 | | 5.59E-01 | 1.69E-01 | | | 1.24E+00 | 2.90E-01 | | | 2.76E-02 | | | | 1.28E-02 | | 1.07E+00 | | | |
| Epichlorohydrin | | | | | | | | | | | | 7.08E-04 | | | | | | 1.17E-02 | 2.73E-03 | | | | | | | 0.00E+00 | | 1.01E-02 | | | |
| Formaldehyde | 2.02E-01 | 2.21E+00 | | 6.82E-01 | | 7.39E+00 | 4.97E+00 | 4.64E+00 | 1.79E+00 | 2.00E+00 | 4.12E-02 | 2.16E+00 | 9.05E+00 | 2.21E+01 | 6.68E+00 | 5.50E-01 | 5.59E+00 | 4.43E-02 | 1.04E-02 | 2.91E+00 | 3.78E-01 | 1.09E+00 | 2.95E+00 | 6.38E-01 | | 5.55E-01 | 5.31E-01 | 3.82E-02 | 3.29E+00 | 1.59E+00 | |
| Glutaraldehyde | | 6.94E-02 | | 6.52E-02 | 3.68E-01 | | | | | 1.92E-01 | | 2.07E-01 | 2.84E-01 | 6.94E-01 | 2.10E-01 | | 1.76E-01 | 1.89E-02 | 4.43E-03 | 9.16E-02 | 3.62E-02 | 3.43E-02 | | | | 5.31E-02 | 5.08E-02 | 1.63E-02 | | | |
| n-Hexane | | 1.20E-01 | 8.02E-01 | 5.60E-01 | | 4.01E-01 | 2.69E-01 | | 9.72E-02 | 1.64E+00 | 7.72E-02 | 1.78E+00 | 4.91E-01 | 1.20E+00 | 3.62E-01 | | 3.03E-01 | 8.30E-02 | 1.94E-02 | 1.58E-01 | | 5.92E-02 | 1.60E-01 | | | 4.56E-01 | | 7.16E-02 | 1.78E-01 | 8.64E-02 | |
| Hydrazine | | 1.93E-03 | | | | | | | | 1.20E-03 | 5.23E-03 | 1.29E-03 | | 1.93E-02 | 5.82E-03 | | | 5.62E-03 | 1.31E-03 | 2.54E-03 | | | | 5.56E-04 | | 3.32E-04 | | 4.84E-03 | | | |
| Hydrogen chloride (HCL) | 1.76E+00 | 5.68E+00 | 8.49E+00 | 5.92E+00 | 3.34E+01 | 1.90E+01 | 5.46E+00 | 1.19E+01 | 1.97E+00 | 1.74E+01 | 4.17E-01 | 1.88E+01 | 2.33E+01 | 5.68E+01 | 1.72E+01 | 4.78E+00 | 1.44E+01 | 4.48E-01 | 1.05E-01 | 7.49E+00 | 3.28E+00 | 2.81E+00 | 7.59E+00 | | 1.41E+01 | 4.82E+00 | 4.61E+00 | 3.86E-01 | 8.46E+00 | 4.10E+00 | 8.83E+00 |
| Hydrogen fluoride (HF) | | | 1.78E+00 | 1.24E+00 | | 1.43E-01 | 1.14E+00 | | 4.13E-01 | 3.64E+00 | 1.41E-03 | 3.94E+00 | 1.76E-01 | | 1.30E-01 | | | 1.51E-03 | 3.54E-04 | | | | | | 2.96E+00 | | 9.67E-01 | 1.31E-03 | 6.38E-02 | | |
| Isopropyl alcohol (IPA) | | 7.18E+00 | 1.74E+01 | 1.21E+01 | 6.85E+01 | 2.40E+01 | 1.12E+01 | 1.51E+01 | 4.04E+00 | 3.57E+01 | 1.62E+00 | 3.85E+01 | 2.94E+01 | 7.17E+01 | 2.17E+01 | 9.80E+00 | 1.82E+01 | 1.74E+00 | 4.08E-01 | 9.46E+00 | 6.73E+00 | 3.54E+00 | 9.58E+00 | 2.07E+00 | 2.90E+01 | 9.89E+00 | 9.45E+00 | 1.50E+00 | 1.07E+01 | 5.17E+00 | 1.11E+01 |
| Methanol | 9.03E+00 | 2.55E+01 | 4.36E+01 | 3.04E+01 | 1.72E+02 | 8.51E+01 | 2.80E+01 | 5.35E+01 | 2.66E+01 | 8.93E+01 | 5.09E+01 | 9.65E+01 | 1.04E+02 | 2.54E+02 | 7.69E+01 | 2.45E+01 | 6.44E+01 | 5.47E+01 | 1.28E+01 | 3.36E+01 | 1.69E+01 | 1.26E+01 | 3.40E+01 | 7.34E+00 | 7.26E+01 | 2.48E+01 | 2.37E+01 | 4.72E+01 | 3.79E+01 | 1.84E+01 | 3.96E+01 |
| Methylene chloride (DCM) | 5.85E-02 | 3.52E-01 | | 1.97E-01 | 1.11E+00 | 1.18E+00 | 7.91E-01 | | 2.85E-01 | 5.78E-01 | 4.74E+01 | 6.25E-01 | 1.44E+00 | 3.52E+00 | 1.06E+00 | | 8.91E-01 | 5.86E-01 | 1.37E-01 | 4.64E-01 | | 1.74E-01 | 4.70E-01 | | 4.70E-01 | 1.60E-01 | 1.53E-01 | 5.06E-01 | 5.24E-01 | 2.54E-01 | |
| Phosgene | | | | | | | | | | | | | | | | | | 3.67E-02 | | | | | | | | | | 3.16E-02 | | | |
| Tetrachloroethylene (Perc) | | | | 3.40E-02 | | | 3.13E-02 | | 2.27E-02 | 9.98E-02 | 4.34E-02 | | | 1.63E-02 | | 2.74E-02 | | 4.66E-02 | | | | | 2.18E-03 | | | 2.77E-02 | | 4.02E-02 | | | |
| Toluene | | 2.20E-01 | 7.70E-01 | 2.85E-01 | 1.61E+00 | 7.36E-01 | 4.95E-01 | | 1.79E-01 | 8.38E-01 | 3.41E+00 | 9.05E-01 | 9.02E-01 | 2.20E+00 | 6.66E-01 | 2.30E-01 | 5.58E-01 | 3.66E+00 | 8.57E-01 | 2.91E-01 | 1.58E-01 | 1.09E-01 | 2.94E-01 | 6.35E-02 | 6.80E-01 | 2.32E-01 | 2.22E-01 | 3.16E+00 | 3.28E-01 | | 3.42E-01 |
| Trichloroethane (1,1,1-) | | | | 9.52E-01 | | | | | 3.17E-01 | 2.80E+00 | 9.34E-03 | | | | | 7.69E-01 | | 1.00E-02 | | 8.90E-03 | | | | | 2.27E+00 | | | 8.66E-03 | | | |
| Trichloroethylene (TCE) | | | 6.21E-02 | 2.71E-01 | | | | | 9.01E-02 | 7.95E-01 | 2.76E-02 | 8.59E-01 | | | 5.37E-02 | 2.19E-01 | 4.50E-02 | 2.96E-02 | 6.92E-03 | | | | | | 6.46E-01 | 2.21E-01 | 2.11E-01 | 2.55E-02 | 2.64E-02 | | |
| Triethylamine | | 3.74E-02 | | 9.12E-02 | 5.15E-01 | | 8.40E-02 | | 3.03E-02 | 2.68E-01 | 2.88E-01 | 2.89E-01 | | 3.74E-01 | 1.13E-01 | | 9.47E-02 | 3.10E-01 | 7.24E-02 | 4.93E-02 | 5.06E-02 | 1.85E-02 | | 1.08E-02 | 2.18E-01 | 7.42E-02 | | 2.67E-01 | 5.57E-02 | | |
| Xylenes | | 4.39E-01 | | 5.84E-01 | | 1.47E+00 | | | 3.56E-01 | 1.71E+00 | 1.19E-01 | 1.85E+00 | | | 1.33E+00 | 4.71E-01 | 1.11E+00 | 1.28E-01 | 2.99E-02 | 5.79E-01 | 3.24E-01 | 2.17E-01 | 5.86E-01 | 1.27E-01 | 1.39E+00 | 4.75E-01 | | 1.10E-01 | 6.53E-01 | 3.16E-01 | 6.82E-01 |

1 volume src

Note: For input into HARP2, chemical emission rates are divided by the number of stacks including in the air dispersion model.

## HOURLY LABORATORY EMISSIONS BY BUILDING UNDER EXISTING CONDITIONS

| Chemical | 2251 College Ave, Arch. Research Facility | Barker Hall | Campbell Hall | Cory Hall | Davis Hall | Donner Lab | Etcheverry Hall | Genetics & Plant Biology Building | Gillman/ Birge/ LeConte Hall | Hesse/ McCone/ O'Brien | Hildebrand/ Giauque Hall | Hearst Memorial Mining Building | Hilgard Hall | IGI (EBB) | Koshland Hall | Anthropology and Art Practice | Li Ka Shing Center | Latimer Hall | Lewis Hall | Weill Hall (former LSA) | Minor Hall/Minor Addition | Morgan Hall | Mulford Hall | Northwest Animal Facilty | Silver Space Sciences | Stanley Hall | Sutardja Dai Hall | Tan Hall | Valley Life Sciences Building | Oxford Tract/ South Greenhouse | Wellman Hall |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of Stacks per buildings | 1 | 5 | 1 | 1 | 1 | 1 | 1 | 1 | 13 | 1 | 5 | 1 | 1 | 1 | 4 | 1 | 3 | 8 | 9 | 7 | 1 | 6 | 1 | 2 | 1 | 10 | 4 | 4 | 4 | 1 | 1 |
| **Lab Type** | III | II | III | III | III | II | III | II | I, III, III | III | I | III | II | II | II | III | II | I | I | II | III | II | II/III | III | III | III | I | II | II | II |
| **Wet Lab Square Footage (SF)** | 2,962 | 20,461 | 14,296 | 9,970 | 56,300 | 13,674 | 9,193 | 8,592 | 43,111 | 29,287 | 31,720 | 31,644 | 16,748 | 40,900 | 49,455 | 8,047 | 31,066 | 54,524 | 14,342 | 37,766 | 5,531 | 12,119 | 5,461 | 2,360 | 23,790 | 81,200 | 31,066 | 23,518 | 24,351 | 2,949 | 6,356 |
| | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** |
| Benzene | 8.91E-06 | | | 3.00E-05 | 1.69E-04 | | 2.77E-05 | | 1.43E-05 | 8.81E-05 | 5.87E-04 | 9.52E-05 | 7.23E-05 | 1.77E-04 | 5.34E-05 | | 4.47E-05 | 6.30E-04 | 1.47E-04 | 2.33E-05 | | 8.73E-06 | 2.36E-05 | 5.10E-06 | | 2.44E-05 | | 5.44E-04 | 2.63E-05 | | |
| Carbon tetrachloride | | | | 1.97E-04 | | | | | 6.56E-05 | 5.79E-04 | 5.23E-05 | 6.26E-04 | 4.25E-04 | | 3.14E-04 | | | 5.62E-05 | 1.31E-05 | 1.37E-04 | | 5.13E-05 | | | 4.71E-04 | 1.61E-04 | | 4.85E-05 | 1.55E-04 | | 1.61E-04 |
| Chloroform | 1.19E-04 | 1.39E-03 | 5.76E-04 | 4.01E-04 | 2.27E-03 | 4.65E-03 | 3.13E-03 | 2.92E-03 | 1.13E-03 | 1.18E-03 | 7.12E-03 | 1.27E-03 | 5.70E-03 | 1.39E-02 | 4.20E-03 | | 3.52E-03 | 7.65E-03 | 1.79E-03 | 1.83E-03 | 2.23E-04 | 6.87E-04 | 1.86E-03 | | 9.58E-04 | 3.27E-04 | 3.13E-04 | 6.60E-03 | 2.07E-03 | 1.00E-03 | 2.16E-03 |
| Dimethyl formamide | | 5.23E-05 | | 1.36E-06 | 7.67E-06 | 1.75E-04 | 1.18E-04 | | 7.49E-05 | 3.99E-06 | 1.43E-04 | 4.31E-06 | 2.14E-04 | 5.23E-04 | 1.58E-04 | 1.10E-06 | 1.32E-04 | 1.54E-04 | 3.60E-05 | 6.90E-05 | 7.54E-07 | 2.58E-05 | 6.98E-05 | | 3.24E-06 | 1.11E-06 | | 1.33E-04 | 7.78E-05 | | |
| Dioxane, 1,4- | | 3.31E-05 | | 9.33E-06 | 5.27E-05 | | 7.43E-05 | | 2.68E-05 | 2.74E-05 | 6.82E-04 | 2.96E-05 | | 3.30E-04 | 9.99E-05 | | | 7.32E-04 | 1.71E-04 | | | 1.63E-05 | | | | 7.60E-06 | | 6.32E-04 | | | |
| Epichlorohydrin | | | | | | | | | | | | 4.18E-07 | | | | | | 6.89E-06 | 1.61E-06 | | | | | | | 0.00E+00 | | 5.94E-06 | | | |
| Formaldehyde | 1.20E-04 | 1.31E-03 | | 4.03E-04 | | 4.37E-03 | 2.94E-03 | 2.74E-03 | 1.06E-03 | 1.18E-03 | 2.44E-05 | 1.28E-03 | 5.35E-03 | 1.31E-02 | 3.95E-03 | 3.25E-04 | 3.31E-03 | 2.62E-05 | 6.13E-06 | 1.72E-03 | 2.24E-04 | 6.45E-04 | 1.74E-03 | 3.77E-04 | | 3.28E-04 | 3.14E-04 | 2.26E-05 | 1.94E-03 | 9.42E-04 | |
| Glutaraldehyde | | 4.11E-05 | | 3.86E-05 | 2.18E-04 | | | | | 1.13E-04 | | 1.22E-04 | 1.68E-04 | 4.10E-04 | 1.24E-04 | | 1.04E-04 | 1.12E-05 | 2.62E-06 | 5.41E-05 | 2.14E-05 | 2.03E-05 | | | | 3.14E-05 | 3.00E-05 | 9.67E-06 | | | |
| n-Hexane | | 7.09E-05 | 4.74E-04 | 3.31E-04 | | 2.37E-04 | 1.59E-04 | | 5.75E-05 | 9.72E-04 | 4.57E-05 | 1.05E-03 | 2.90E-04 | 7.09E-04 | 2.14E-04 | | 1.79E-04 | 4.91E-05 | 1.15E-05 | 9.35E-05 | | 3.50E-05 | 9.46E-05 | | | 2.70E-04 | | 4.23E-05 | 1.05E-04 | 5.11E-05 | |
| Hydrazine | | 1.14E-06 | | | | | | | | 7.07E-07 | 3.09E-06 | 7.64E-07 | | 1.14E-05 | 3.44E-06 | | | 3.32E-06 | 7.76E-07 | 1.50E-06 | | | | 3.29E-07 | | 1.96E-07 | | 2.86E-06 | | | |
| Hydrogen chloride (HCL) | 1.04E-03 | 3.36E-03 | 5.02E-03 | 6.76E-04 | 3.82E-03 | 1.12E-02 | 3.23E-03 | 7.06E-03 | 1.16E-03 | 1.03E-02 | 2.47E-04 | 1.11E-02 | 1.38E-02 | 3.36E-02 | 1.02E-02 | 2.82E-03 | 8.51E-03 | 2.65E-04 | 6.19E-05 | 4.43E-03 | 1.94E-03 | 1.66E-03 | 4.49E-03 | | 8.35E-03 | 2.85E-03 | 2.73E-03 | 2.28E-04 | 5.00E-03 | 2.42E-03 | 5.22E-03 |
| Hydrogen fluoride (HF) | | | 1.05E-03 | 1.42E-04 | | 8.48E-05 | 6.76E-04 | | 2.44E-04 | 2.15E-03 | 8.33E-07 | 2.33E-03 | 1.04E-04 | | 7.67E-05 | | | 8.95E-07 | 2.09E-07 | | | | | | 1.75E-03 | | 5.71E-04 | 7.72E-07 | 3.78E-05 | | |
| Isopropyl alcohol (IPA) | | 4.24E-03 | 1.03E-02 | 1.39E-03 | 7.82E-03 | 1.42E-02 | 6.62E-03 | 8.91E-03 | 2.39E-03 | 2.11E-02 | 9.60E-04 | 2.28E-02 | 1.74E-02 | 4.24E-02 | 1.28E-02 | 5.79E-03 | 1.07E-02 | 1.03E-03 | 2.41E-04 | 5.60E-03 | 3.98E-03 | 2.10E-03 | 5.66E-03 | 1.22E-03 | 1.71E-02 | 5.85E-03 | 5.59E-03 | 8.89E-04 | 6.31E-03 | 3.06E-03 | 6.59E-03 |
| Methanol | 5.34E-03 | 1.51E-02 | 2.58E-02 | 3.47E-03 | 1.96E-02 | 5.03E-02 | 1.66E-02 | 3.16E-02 | 1.57E-02 | 5.28E-02 | 3.01E-02 | 5.71E-02 | 6.16E-02 | 1.50E-01 | 4.55E-02 | 1.45E-02 | 3.81E-02 | 3.24E-02 | 7.57E-03 | 1.99E-02 | 9.97E-03 | 7.43E-03 | 2.01E-02 | 4.34E-03 | 4.29E-02 | 1.46E-02 | 1.40E-02 | 2.79E-02 | 2.24E-02 | 1.09E-02 | 2.34E-02 |
| Methylene chloride (DCM) | 3.46E-05 | 2.08E-04 | | 1.16E-04 | 6.57E-04 | 6.96E-04 | 4.68E-04 | | 1.69E-04 | 3.42E-04 | 2.80E-02 | 3.69E-04 | 8.52E-04 | 2.08E-03 | 6.29E-04 | | 5.27E-04 | 3.47E-04 | 8.11E-05 | 2.74E-04 | | 1.03E-04 | 2.78E-04 | | 2.78E-04 | 9.48E-05 | 9.07E-05 | 2.99E-04 | 3.10E-04 | 1.50E-04 | |
| Phosgene | | | | | | | | | | | | | | | | | | 2.17E-05 | | | | | | | | | | 1.87E-05 | | | |
| Tetrachloroethylene (Perc) | | | | 2.01E-05 | | | 1.85E-05 | | 1.34E-05 | 5.90E-05 | 2.56E-05 | | | 9.65E-06 | | 1.62E-05 | | 2.76E-05 | | | | | 1.29E-06 | | | 1.64E-05 | | 2.38E-05 | | | |
| Toluene | | 1.30E-04 | 4.55E-04 | 1.69E-04 | 9.52E-04 | 4.36E-04 | 2.93E-04 | | 1.06E-04 | 4.95E-04 | 2.02E-03 | 5.35E-04 | 5.33E-04 | 1.30E-03 | 3.94E-04 | 1.36E-04 | 3.30E-04 | 2.17E-03 | 5.07E-04 | 1.72E-04 | 9.35E-05 | 6.43E-05 | 1.74E-04 | 3.76E-05 | 4.02E-04 | 1.37E-04 | 1.31E-04 | 1.87E-03 | 1.94E-04 | | 2.02E-04 |
| Trichloroethane (1,1,1-) | | | | 1.09E-04 | | | | | 1.87E-04 | 1.65E-03 | 5.52E-06 | | | | | 4.55E-04 | | 5.93E-06 | | 5.27E-06 | | | | | 1.34E-03 | | | 5.12E-06 | | | |
| Trichloroethylene (TCE) | | | 3.67E-05 | 3.09E-05 | | | | | 5.32E-05 | 4.70E-04 | 1.63E-05 | 5.08E-04 | | | 3.18E-05 | 1.29E-04 | 2.66E-05 | 1.75E-05 | 4.09E-06 | | | | | | 3.82E-04 | 1.30E-04 | 1.25E-04 | 1.51E-05 | 1.56E-05 | | |
| Triethylamine | | 2.21E-05 | | 5.39E-05 | 3.04E-04 | | 4.97E-05 | | 1.79E-05 | 1.58E-04 | 1.71E-04 | 1.71E-04 | | 2.21E-04 | 6.69E-05 | | 5.60E-05 | 1.83E-04 | 4.28E-05 | 2.92E-05 | 2.99E-05 | 1.09E-05 | | 6.38E-06 | 1.29E-04 | 4.39E-05 | | 1.58E-04 | 3.29E-05 | | |
| Xylenes | | 2.60E-04 | | 3.45E-04 | | 8.68E-04 | | | 2.10E-04 | 1.01E-03 | 7.03E-05 | 1.10E-03 | | | 7.84E-04 | 2.79E-04 | 6.57E-04 | 7.56E-05 | 1.77E-05 | 3.42E-04 | 1.91E-04 | 1.28E-04 | 3.46E-04 | 7.49E-05 | 8.24E-04 | 2.81E-04 | | 6.52E-05 | 3.86E-04 | 1.87E-04 | 4.03E-04 |

Note: For input into HARP2, chemical emission rates are divided by the number of stacks including in the air dispersion model.

# ANNUAL EMISSION RATES FOR LRDP PROPOSED WET LABORATORIES

| Chemical | CP1, Heathcock Hall[1] | CP10, Cory Hall | CP12, Davis Hall | CP13, Donner Lab | CP20, Hesse/O'Brien + CP24 McCone | CP21, Koshland Hall | CP22, Anthropology and Art Practice/ Bancroft | CP23, Lewis Hall | CP26, Morgan Hall | Woo Han Fai Hall, Bakar Bioenginuity Hub |
|---|---|---|---|---|---|---|---|---|---|---|
| Number of Stacks per buildings | 1 | 1 | 1 | 1 | 1 | 4 | 1 | 9 | 6 | 3 |
| **Lab Type** | I | III | III | I | III | II | III | I | II | II |
| **Wet Lab Square Footage (SF)** | 30,030 | 11,274 | 56,379 | 35,688 | 78,041 | 41,507 | 23,556 | 30,727 | 28,074 | 21,000 |
| | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** | **(lb/yr)** |
| Benzene | 4.70E+00 | 5.74E-02 | 2.87E-01 | | 3.97E-01 | 7.58E-02 | | 5.34E-01 | 3.42E-02 | |
| Carbon tetrachloride | 4.19E-01 | 3.77E-01 | | | 2.61E+00 | 4.46E-01 | | 4.76E-02 | 2.01E-01 | |
| Chloroform | 5.70E+01 | 7.68E-01 | 3.84E+00 | 6.77E+01 | 5.32E+00 | 5.97E+00 | | 6.48E+00 | 2.69E+00 | 4.03E+00 |
| Dimethyl formamide | 1.15E+00 | 2.60E-03 | 1.30E-02 | 1.36E+00 | 1.80E-02 | 2.24E-01 | 5.43E-03 | 1.30E-01 | 1.01E-01 | |
| Dioxane, 1,4- | 5.46E+00 | 1.78E-02 | 8.92E-02 | | 1.23E-01 | 1.42E-01 | | 6.20E-01 | 6.40E-02 | |
| Epichlorohydrin | 5.14E-02 | | | | | | | 5.84E-03 | | |
| Formaldehyde | 1.95E-01 | 7.71E-01 | | 2.32E-01 | 5.33E+00 | 5.61E+00 | 1.61E+00 | 2.22E-02 | 2.53E+00 | |
| Glutaraldehyde | 8.35E-02 | 7.37E-02 | 3.69E-01 | | 5.10E-01 | 1.76E-01 | | 9.49E-03 | 7.94E-02 | |
| n-Hexane | 3.66E-01 | 6.33E-01 | | 4.34E-01 | 4.38E+00 | 3.04E-01 | | 4.16E-02 | 1.37E-01 | |
| Hydrazine | 2.47E-02 | | | | 3.19E-03 | 4.89E-03 | | 2.81E-03 | | |
| Hydrogen chloride (HCL) | 1.97E+00 | 6.69E+00 | 3.35E+01 | 2.35E+00 | 4.63E+01 | 1.44E+01 | 1.40E+01 | 2.24E-01 | 6.50E+00 | 9.72E+00 |
| Hydrogen fluoride (HF) | 6.67E-03 | 1.40E+00 | | 7.93E-03 | 9.71E+00 | 1.09E-01 | | 7.58E-04 | | |
| Isopropyl alcohol (IPA) | 7.68E+00 | 1.37E+01 | 6.86E+01 | 9.13E+00 | 9.50E+01 | 1.82E+01 | 2.87E+01 | 8.73E-01 | 8.21E+00 | 1.23E+01 |
| Methanol | 2.41E+02 | 3.44E+01 | 1.72E+02 | 2.87E+02 | 2.38E+02 | 6.46E+01 | 7.18E+01 | 2.74E+01 | 2.91E+01 | 4.36E+01 |
| Methylene chloride (DCM) | 2.24E+02 | 2.23E-01 | 1.11E+00 | 2.66E+02 | 1.54E+00 | 8.92E-01 | | 2.55E+01 | 4.02E-01 | |
| Phosgene | | | | | | | | | | |
| Tetrachloroethylene (Perc) | | 3.84E-02 | | | 2.66E-01 | | 8.02E-02 | | | |
| Toluene | 1.61E+01 | 3.22E-01 | 1.61E+00 | 1.92E+01 | 2.23E+00 | 5.59E-01 | 6.74E-01 | 1.84E+00 | 2.52E-01 | |
| Trichloroethane (1,1,1-) | | 1.08E+00 | | | 7.46E+00 | | 2.25E+00 | | | |
| Trichloroethylene (TCE) | 1.30E-01 | 3.06E-01 | | | 2.12E+00 | 4.51E-02 | 6.40E-01 | 1.48E-02 | | |
| Triethylamine | 1.37E+00 | 1.03E-01 | 5.15E-01 | | 7.13E-01 | 9.49E-02 | | 1.55E-01 | 4.28E-02 | |
| Xylenes | 5.63E-01 | 6.60E-01 | | 6.69E-01 | 4.57E+00 | 1.11E+00 | 1.38E+00 | 6.40E-02 | 5.02E-01 | 7.51E-01 |

Note: For input into HARP2, chemical emission rates are divided by the number of stacks including in the air dispersion model.

[1] Chemicals for CP1 (Lab Type I) selected based on chemicals used for similar lab types (i.e., Lewis Hall, Type I).

[2] Chemicals selected for Woo Han Fai Hall from HRA for Bakar Bioenginuity Hub (Yorke, 2018).

Note: Oxford Tract, South Greenhouse source is proposed for redevelopment in LRDP Update. Future emissions from this source is omitted from LRDP analysis.

# HOURLY LABORATORY EMISSIONS FOR LRDP PROPOSED WET LABORATORIES

| Chemical | CP1, Heathcock Hall[1] | CP10, Cory Hall | CP12, Davis Hall | CP13, Donner Lab | CP20, Hesse/O'Brien + CP24 McCone | CP21, Koshland Hall | CP22, Anthropology and Art Practice/ Bancroft | CP23, Lewis Hall | CP26, Morgan Hall | Woo Han Fai Hall, Bakar Bioenginuity Hub |
|---|---|---|---|---|---|---|---|---|---|---|
| Number of Stacks per buildings | 1 | 1 | 1 | 1 | 1 | 4 | 1 | 9 | 6 | 3 |
| **Lab Type** | I | III | III | I | III | II | III | I | II | II |
| **Wet Lab Square Footage (SF)** | 30,030 | 11,274 | 56,379 | 35,688 | 78,041 | 41,507 | 23,556 | 30,727 | 28,074 | 21,000 |
| | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** | **(lb/hr)** |
| Benzene | 2.78E-03 | 3.39E-05 | 1.70E-04 | | 2.35E-04 | 4.48E-05 | | 3.16E-04 | 2.02E-05 | |
| Carbon tetrachloride | 2.48E-04 | 2.23E-04 | | | 1.54E-03 | 2.64E-04 | | 2.82E-05 | 1.19E-04 | |
| Chloroform | 3.37E-02 | 4.54E-04 | 2.27E-03 | 4.01E-02 | 3.14E-03 | 3.53E-03 | | 3.83E-03 | 1.59E-03 | 7.14E-03 |
| Dimethyl formamide | 6.79E-04 | 1.54E-06 | 7.68E-06 | 8.06E-04 | 1.06E-05 | 1.33E-04 | 3.21E-06 | 7.71E-05 | 5.98E-05 | |
| Dioxane, 1,4- | 3.23E-03 | 1.05E-05 | 5.28E-05 | | 7.30E-05 | 8.38E-05 | | 3.67E-04 | 3.78E-05 | |
| Epichlorohydrin | 3.04E-05 | | | | | | | 3.45E-06 | | |
| Formaldehyde | 1.15E-04 | 4.56E-04 | | 1.37E-04 | 3.15E-03 | 3.31E-03 | 9.52E-04 | 1.31E-05 | 1.49E-03 | |
| Glutaraldehyde | 4.94E-05 | 4.36E-05 | 2.18E-04 | | 3.02E-04 | 1.04E-04 | | 5.61E-06 | 4.69E-05 | |
| n-Hexane | 2.16E-04 | 3.74E-04 | | 2.57E-04 | 2.59E-03 | 1.80E-04 | | 2.46E-05 | 8.11E-05 | |
| Hydrazine | 1.46E-05 | | | | 1.88E-06 | 2.89E-06 | | 1.66E-06 | | |
| Hydrogen chloride (HCL) | 1.17E-03 | 7.64E-04 | 3.82E-03 | 1.39E-03 | 2.74E-02 | 8.52E-03 | 8.27E-03 | 1.33E-04 | 3.84E-03 | 1.73E-02 |
| Hydrogen fluoride (HF) | 3.94E-06 | 1.60E-04 | | 4.69E-06 | 5.74E-03 | 6.44E-05 | | 4.48E-07 | | |
| Isopropyl alcohol (IPA) | 4.54E-03 | 1.57E-03 | 7.84E-03 | 5.40E-03 | 5.62E-02 | 1.08E-02 | 1.70E-02 | 5.16E-04 | 4.85E-03 | 2.18E-02 |
| Methanol | 1.43E-01 | 3.93E-03 | 1.96E-02 | 1.69E-01 | 1.41E-01 | 3.82E-02 | 4.25E-02 | 1.62E-02 | 1.72E-02 | 7.73E-02 |
| Methylene chloride (DCM) | 1.33E-01 | 1.32E-04 | 6.58E-04 | 1.58E-01 | 9.11E-04 | 5.28E-04 | | 1.51E-02 | 2.38E-04 | |
| Phosgene | | | | | | | | | | |
| Tetrachloroethylene (Perc) | | 2.27E-05 | | | 1.57E-04 | | 4.74E-05 | | | |
| Toluene | 9.55E-03 | 1.91E-04 | 9.54E-04 | 1.13E-02 | 1.32E-03 | 3.31E-04 | 3.98E-04 | 1.09E-03 | 1.49E-04 | |
| Trichloroethane (1,1,1-) | | 1.23E-04 | | | 4.41E-03 | | 1.33E-03 | | | |
| Trichloroethylene (TCE) | 7.71E-05 | 3.49E-05 | | | 1.25E-03 | 2.67E-05 | 3.78E-04 | 8.77E-06 | | |
| Triethylamine | 8.07E-04 | 6.10E-05 | 3.05E-04 | | 4.22E-04 | 5.61E-05 | | 9.18E-05 | 2.53E-05 | |
| Xylenes | 3.33E-04 | 3.90E-04 | | 3.96E-04 | 2.70E-03 | 6.58E-04 | 8.15E-04 | 3.79E-05 | 2.97E-04 | 1.33E-03 |

Note: For input into HARP2, chemical emission rates are divided by the number of stacks including in the air dispersion model.

[1] Chemicals for CP1 (Lab Type I) selected based on chemicals used for similar lab types (i.e., Lewis Hall, Type I).

[2] Chemicals selected for Woo Han Fai Hall from HRA for Bakar Bioenginuity Hub (Yorke, 2018).

Note: Oxford Tract, South Greenhouse source is proposed for redevelopment in LRDP Update. Future emissions from this source is omitted from LRDP analysis.

## *ANNUAL AND HOURLY EMISSIONS RATES FOR HAZARDOUS MATERIALS FACILITY*

| Existing | | | |
|---|---|---|---|
| **Chemical** | **Bulk Pouring[1] lbs/yr** | **Annual Emissions lb/yr** | **Hourly Emissions (lb/hr)[2]** |
| Carbon tetrachloride | 1,000 | 3.60E-01 | 1.73E-03 |
| Chloroform | 5 | 1.80E-03 | 8.65E-06 |
| Formaldehyde | 200 | 7.20E-02 | 3.46E-04 |
| Methylene chloride | 3,000 | 1.08E+00 | 5.19E-03 |

USEPA, Ap-42, Secton 4.7.1.1 Solvent Storage and Handling

Fugitive Emissions from Loading (VOC) 0.72 lb/ton

| LRDP[3] | | |
|---|---|---|
| **Chemical** | **Annual Emissions lb/yr** | **Hourly Emissions (lb/hr)[2]** |
| Carbon tetrachloride | 5.33E-01 | 2.56E-03 |
| Chloroform | 2.66E-03 | 1.28E-05 |
| Formaldehyde | 1.07E-01 | 5.12E-04 |
| Methylene chloride | 1.60E+00 | 7.68E-03 |

[1] Bulk pouring for 12/1/2019 through 12/1/2020 provided by UC Berkeley.

[2] Hourly emissions assumed operations of 4 hours per week, 52 weeks per year.

[3] Future emissions assumed to be 48 percent higher than current emissions.

# AIR TOXIC CONTAMINANT EMISSION FACTORS FOR COMBUSTION EMISSION CALCULATIONS

| Pollutant | Turbines | Boilers |
|---|---|---|
| | Natural Gas[1] lb/MMBTU | Natual Gas[1] lb/MMBTU |
| Acetaldehyde | 1.34E-04 | 4.22E-06 |
| Acrolein | 1.84E-05 | 2.65E-06 |
| Benzene | 8.91E-05 | 7.84E-06 |
| 1,3 Butadiene | 6.07E-08 | --- |
| Ethylbenzene | 1.76E-05 | 9.31E-06 |
| Formaldehyde | 6.74E-03 | 2.17E-04 |
| Hexane | 2.54E-04 | 6.18E-06 |
| Naphthalene | 1.63E-06 | 5.98E-07 |
| PAHs (BaP Equivalents) | 2.12E-08 | 6.60E-09 |
| Propylene | 7.56E-04 | 7.17E-04 |
| Propylene Oxide | 1.95E-05 | --- |
| Toluene | 6.96E-05 | 3.59E-05 |
| Xylenes | 2.56E-05 | 2.67E-05 |
| **Metals** | | |
| Arsenic | 2.21E-08 | 1.96E-07 |
| Beryllium | 4.81E-08 | 5.88E-09 |
| Cadmium | 1.88E-07 | 1.08E-06 |
| Chromium | 1.84E-08 | --- |
| Copper | 1.76E-06 | 8.33E-07 |
| Lead | 5.27E-07 | 4.90E-07 |
| Manganese | 1.47E-06 | 3.73E-07 |
| Mercury | 1.47E-06 | 2.55E-07 |
| Nickel | 1.88E-07 | 2.06E-06 |
| Selenium | 3.72E-07 | 1.18E-08 |
| Vanadium | ---- | 2.25E-06 |

[1] BAAQMD, 2020. Toxic Air Contaminant (TAC) Emission Factor Guidelines, Appendix A, da

# UC BERKELEY TOXIC AIR EMISSIONS FROM COMBUSTION SOURCES
# EXISTING CONDITIONS - ANNUAL AVERAGE

| Pollutant | Turbines | | Boiler #2 | | Boiler #3 | | Boiler #4 | | Clark Kerr Boiler | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Natural Gas | | Natural Gas | | Natural Gas | | Natural Gas | | Natural Gas | |
| | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr |
| Acetaldehyde | 3.15E-02 | 2.757E+02 | 3.55E-05 | 3.114E-01 | 1.06E-05 | 9.327E-02 | 2.26E-05 | 1.979E-01 | 5.41E-06 | 4.737E-02 |
| Acrolein | 4.32E-03 | 3.785E+01 | 2.23E-05 | 1.955E-01 | 6.69E-06 | 5.857E-02 | 1.42E-05 | 1.243E-01 | 3.40E-06 | 2.975E-02 |
| Benzene | 2.09E-02 | 1.833E+02 | 6.60E-05 | 5.784E-01 | 1.98E-05 | 1.733E-01 | 4.20E-05 | 3.677E-01 | 1.00E-05 | 8.801E-02 |
| 1,3 Butadiene | 1.43E-05 | 1.249E-01 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Ethylbenzene | 4.13E-03 | 3.621E+01 | 7.84E-05 | 6.869E-01 | 2.35E-05 | 2.058E-01 | 4.98E-05 | 4.367E-01 | 1.19E-05 | 1.045E-01 |
| Formaldehyde | 1.58E+00 | 1.387E+04 | 1.83E-03 | 1.601E+01 | 5.48E-04 | 4.796E+00 | 1.16E-03 | 1.018E+01 | 2.78E-04 | 2.436E+00 |
| Hexane | 5.96E-02 | 5.225E+02 | 5.21E-05 | 4.560E-01 | 1.56E-05 | 1.366E-01 | 3.31E-05 | 2.899E-01 | 7.92E-06 | 6.937E-02 |
| Naphthalene | 3.83E-04 | 3.353E+00 | 5.04E-06 | 4.412E-02 | 1.51E-06 | 1.322E-02 | 3.20E-06 | 2.805E-02 | 7.66E-07 | 6.713E-03 |
| PAHs (BaP Equivalents) | 4.98E-06 | 4.361E-02 | 5.56E-08 | 4.870E-04 | 1.67E-08 | 1.459E-04 | 3.53E-08 | 3.096E-04 | 8.46E-09 | 7.409E-05 |
| Propylene | 1.78E-01 | 1.555E+03 | 6.04E-03 | 5.290E+01 | 1.81E-03 | 1.585E+01 | 3.84E-03 | 3.363E+01 | 9.19E-04 | 8.049E+00 |
| Propylene Oxide | 4.58E-03 | 4.011E+01 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Toluene | 1.63E-02 | 1.432E+02 | 3.02E-04 | 2.649E+00 | 9.06E-05 | 7.935E-01 | 1.92E-04 | 1.684E+00 | 4.60E-05 | 4.030E-01 |
| Xylenes | 6.01E-03 | 5.266E+01 | 2.25E-04 | 1.970E+00 | 6.74E-05 | 5.901E-01 | 1.43E-04 | 1.252E+00 | 3.42E-05 | 2.997E-01 |
| **Particulates** | | | | | | | | | | |
| Arsenic | 5.19E-06 | 4.546E-02 | 1.65E-06 | 1.446E-02 | 4.95E-07 | 4.332E-03 | 1.05E-06 | 9.193E-03 | 2.51E-07 | 2.200E-03 |
| Beryllium | 1.13E-05 | 9.895E-02 | 4.95E-08 | 4.338E-04 | 1.48E-08 | 1.300E-04 | 3.15E-08 | 2.758E-04 | 7.53E-09 | 6.601E-05 |
| Cadmium | 4.41E-05 | 3.867E-01 | 9.10E-06 | 7.968E-02 | 2.72E-06 | 2.387E-02 | 5.78E-06 | 5.065E-02 | 1.38E-06 | 1.212E-02 |
| Chromium | 4.32E-06 | 3.785E-02 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | 4.13E-04 | 3.621E+00 | 7.02E-06 | 6.146E-02 | 2.10E-06 | 1.841E-02 | 4.46E-06 | 3.907E-02 | 1.07E-06 | 9.351E-03 |
| Lead | 1.24E-04 | 1.084E+00 | 4.13E-06 | 3.615E-02 | 1.24E-06 | 1.083E-02 | 2.62E-06 | 2.298E-02 | 6.28E-07 | 5.500E-03 |
| Manganese | 3.45E-04 | 3.024E+00 | 3.14E-06 | 2.752E-02 | 9.41E-07 | 8.244E-03 | 2.00E-06 | 1.749E-02 | 4.78E-07 | 4.187E-03 |
| Mercury | 3.45E-04 | 3.024E+00 | 2.15E-06 | 1.881E-02 | 6.43E-07 | 5.636E-03 | 1.37E-06 | 1.196E-02 | 3.27E-07 | 2.862E-03 |
| Nickel | 4.41E-05 | 3.867E-01 | 1.74E-05 | 1.520E-01 | 5.20E-06 | 4.553E-02 | 1.10E-05 | 9.662E-02 | 2.64E-06 | 2.312E-02 |
| Selenium | 8.74E-05 | 7.653E-01 | 9.94E-08 | 8.706E-04 | 2.98E-08 | 2.608E-04 | 6.32E-08 | 5.535E-04 | 1.51E-08 | 1.325E-04 |
| Vanadium | N/A | N/A | 1.90E-05 | 1.660E-01 | 5.68E-06 | 4.973E-02 | 1.20E-05 | 1.055E-01 | 2.88E-06 | 2.526E-02 |

**TURBINE + Catalytic Afterburner**
**Natural Gas**
**Annual**

| | |
|---|---|
| **MMBtu (2018):**[1] | 2,057,150 |
| **hr/year:** | 8760 |
| **MMBtu/hr (HHV):** | **234.83** |
| **Btu/scf (HHV):** | 1000 |

| | BOILER #2 | BOILER #3 | BOILER #4 | Clark Kerr Boiler |
|---|---|---|---|---|
| | Natural Gas | Natural Gas | Natural Gas | Natural Gas |
| **Annual** | | | | |
| **hr/total hours** | **0.52** | **0.15** | **0.33** | |
| **MMBTU/hr:** | **8.4** | **2.5** | **5.4** | **1.3** |

| | |
|---|---|
| **2018 Total - Auxilary Boilers (3) MMBTU:** | 142,786 |
| **Clark Kerr Boiler Therms:** | 112,254 |

## UC BERKELEY TOXIC AIR EMISSIONS FROM COMBUSTION SOURCES
## EXISTING CONDICTIONS - MAXIMUM HOURLY

| Pollutant | Turbines | | Boiler #2 | | Boiler #3 | | Boiler #4 | | Clark Kerr Boiler | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Natural Gas | | Natural Gas | | Natural Gas | | Natural Gas | | Natural Gas | |
| | lb/hr | g/s | lb/hr | g/s | lb/hr | g/s | lb/hr | g/s | lb/hr | g/s |
| Acetaldehyde | 4.38E-02 | 5.521E-03 | 5.78E-04 | 7.28E-05 | 5.70E-04 | 7.18E-05 | 5.70E-04 | 7.18E-05 | 4.43E-05 | 5.58E-06 |
| Acrolein | 6.02E-03 | 7.581E-04 | 3.63E-04 | 4.57E-05 | 3.58E-04 | 4.51E-05 | 3.58E-04 | 4.51E-05 | 2.78E-05 | 3.51E-06 |
| Benzene | 2.91E-02 | 3.671E-03 | 1.07E-03 | 1.35E-04 | 1.06E-03 | 1.33E-04 | 1.06E-03 | 1.33E-04 | 8.23E-05 | 1.04E-05 |
| 1,3 Butadiene | 1.98E-05 | 2.501E-06 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Ethylbenzene | 5.76E-03 | 7.252E-04 | 1.28E-03 | 1.61E-04 | 1.26E-03 | 1.58E-04 | 1.26E-03 | 1.58E-04 | 9.78E-05 | 1.23E-05 |
| Fomaldehyde | 2.20E+00 | 2.777E-01 | 2.97E-02 | 3.75E-03 | 2.93E-02 | 3.69E-03 | 2.93E-02 | 3.69E-03 | 2.28E-03 | 2.87E-04 |
| Hexane3 | 8.31E-02 | 1.047E-02 | 8.47E-04 | 1.07E-04 | 8.34E-04 | 1.05E-04 | 8.34E-04 | 1.05E-04 | 6.49E-05 | 8.18E-06 |
| Naphthalene | 5.33E-04 | 6.716E-05 | 8.19E-05 | 1.03E-05 | 8.07E-05 | 1.02E-05 | 8.07E-05 | 1.02E-05 | 6.28E-06 | 7.91E-07 |
| PAHs (BaP Equivalents) | 6.93E-06 | 8.735E-07 | 9.04E-07 | 1.14E-07 | 8.91E-07 | 1.12E-07 | 8.91E-07 | 1.12E-07 | 6.93E-08 | 8.73E-09 |
| Phenanthrene | 2.47E-01 | 3.115E-02 | 9.82E-02 | 1.24E-02 | 9.68E-02 | 1.22E-02 | 9.68E-02 | 1.22E-02 | 7.53E-03 | 9.49E-04 |
| Proylene Oxide | 6.38E-03 | 8.034E-04 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Toluene | 2.28E-02 | 2.868E-03 | 4.92E-03 | 6.20E-04 | 4.85E-03 | 6.11E-04 | 4.85E-03 | 6.11E-04 | 3.77E-04 | 4.75E-05 |
| Xylenes | 8.37E-03 | 1.055E-03 | 3.66E-03 | 4.61E-04 | 3.60E-03 | 4.54E-04 | 3.60E-03 | 4.54E-04 | 2.80E-04 | 3.53E-05 |
| **Particulates** | | | | | | | | | | |
| Arsenic | 7.23E-06 | 9.106E-07 | 2.69E-05 | 3.38E-06 | 2.65E-05 | 3.33E-06 | 2.65E-05 | 3.33E-06 | 2.06E-06 | 2.59E-07 |
| Beryllium | 1.57E-05 | 1.982E-06 | 8.06E-07 | 1.02E-07 | 7.94E-07 | 1.00E-07 | 7.94E-07 | 1.00E-07 | 6.17E-08 | 7.78E-09 |
| Cadmium | 6.15E-05 | 7.746E-06 | 1.48E-04 | 1.86E-05 | 1.46E-04 | 1.84E-05 | 1.46E-04 | 1.84E-05 | 1.13E-05 | 1.43E-06 |
| Chromium | 6.02E-06 | 7.581E-07 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | 5.76E-04 | 7.252E-05 | 1.14E-04 | 1.44E-05 | 1.12E-04 | 1.42E-05 | 1.12E-04 | 1.42E-05 | 8.75E-06 | 1.10E-06 |
| Lead | 1.72E-04 | 2.171E-05 | 6.71E-05 | 8.46E-06 | 6.62E-05 | 8.33E-06 | 6.62E-05 | 8.33E-06 | 5.15E-06 | 6.48E-07 |
| Manganese | 4.81E-04 | 6.057E-05 | 5.11E-05 | 6.44E-06 | 5.04E-05 | 6.34E-06 | 5.04E-05 | 6.34E-06 | 3.92E-06 | 4.93E-07 |
| Mercury | 4.81E-04 | 6.057E-05 | 3.49E-05 | 4.40E-06 | 3.44E-05 | 4.34E-06 | 3.44E-05 | 4.34E-06 | 2.68E-06 | 3.37E-07 |
| Nickel | 6.15E-05 | 7.746E-06 | 2.82E-04 | 3.56E-05 | 2.78E-04 | 3.50E-05 | 2.78E-04 | 3.50E-05 | 2.16E-05 | 2.73E-06 |
| Selenium | 1.22E-04 | 1.533E-05 | 1.62E-06 | 2.04E-07 | 1.59E-06 | 2.01E-07 | 1.59E-06 | 2.01E-07 | 1.24E-07 | 1.56E-08 |
| Vanadium | N/A | N/A | 3.08E-04 | 3.88E-05 | 3.04E-04 | 3.83E-05 | 3.04E-04 | 3.83E-05 | 2.36E-05 | 2.98E-06 |

**TURBINE + Catalytic Afterburner**
**Natural Gas**
**Maximum Hourly**

| | |
|---|---|
| **MMBtu/hr (HHV):** | **327.0** |
| Btu/scf (HHV): | 1000 |
| MMscf/hr: | 0.327 |

| | BOILER #2 | BOILER #3 | BOILER #4 | Clark Kerr Boiler |
|---|---|---|---|---|
| | Natural Gas | Natural Gas | Natural Gas | Natural Gas |
| **Maximum Hourly** | | | | |
| **MMBtu/hr (HHV):** | **137.0** | **135.0** | **135.0** | **10.5** |
| Btu/scf (HHV): | 1000 | 1000 | 1000 | 1000 |
| MMscf/hr: | 0.137 | 0.135 | 0.135 | 0.011 |

2020 BAAQMD Permit, Turbine: 243 MMBTU/hr
2020 BAAQMD Permit, Duct Burner: 84 MMBTU/hr

# UC BERKELEY TOXIC AIR EMISSIONS FROM COMBUSTION SOURCES
# LRDP - ANNUAL AVERAGE

| Pollutant | Turbines | | Boiler #2 | | Boiler #3 | | Boiler #4 | | Clark Kerr Boiler | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Natural Gas | | Natural Gas | | Natural Gas | | Natural Gas | | Natural Gas | |
| | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr | lb/hr | lb/yr |
| Acetaldehyde | 3.15E-02 | 2.757E+02 | 5.78E-05 | 5.065E-01 | 5.70E-05 | 4.991E-01 | 5.70E-05 | 4.991E-01 | 5.41E-06 | 4.737E-02 |
| Acrolein | 4.32E-03 | 3.785E+01 | 3.63E-05 | 3.180E-01 | 3.58E-05 | 3.134E-01 | 3.58E-05 | 3.134E-01 | 3.40E-06 | 2.975E-02 |
| Benzene | 2.09E-02 | 1.833E+02 | 1.07E-04 | 9.409E-01 | 1.06E-04 | 9.272E-01 | 1.06E-04 | 9.272E-01 | 1.00E-05 | 8.801E-02 |
| 1,3 Butadiene | 1.43E-05 | 1.249E-01 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Ethylbenzene | 4.13E-03 | 3.621E+01 | 1.28E-04 | 1.117E+00 | 1.26E-04 | 1.101E+00 | 1.26E-04 | 1.101E+00 | 1.19E-05 | 1.045E-01 |
| Formaldehyde | 1.58E+00 | 1.387E+04 | 2.97E-03 | 2.604E+01 | 2.93E-03 | 2.566E+01 | 2.93E-03 | 2.566E+01 | 2.78E-04 | 2.436E+00 |
| Hexane | 5.96E-02 | 5.225E+02 | 8.47E-05 | 7.417E-01 | 8.34E-05 | 7.308E-01 | 8.34E-05 | 7.308E-01 | 7.92E-06 | 6.937E-02 |
| Naphthalene | 3.83E-04 | 3.353E+00 | 8.19E-06 | 7.177E-02 | 8.07E-06 | 7.072E-02 | 8.07E-06 | 7.072E-02 | 7.66E-07 | 6.713E-03 |
| PAHs (BaP Equivalents) | 4.98E-06 | 4.361E-02 | 9.04E-08 | 7.921E-04 | 8.91E-08 | 7.805E-04 | 8.91E-08 | 7.805E-04 | 8.46E-09 | 7.409E-05 |
| Propylene | 1.78E-01 | 1.555E+03 | 9.82E-03 | 8.605E+01 | 9.68E-03 | 8.479E+01 | 9.68E-03 | 8.479E+01 | 9.19E-04 | 8.049E+00 |
| Propylene Oxide | 4.58E-03 | 4.011E+01 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Toluene | 1.63E-02 | 1.432E+02 | 4.92E-04 | 4.308E+00 | 4.85E-04 | 4.246E+00 | 4.85E-04 | 4.246E+00 | 4.60E-05 | 4.030E-01 |
| Xylenes | 6.01E-03 | 5.266E+01 | 3.66E-04 | 3.204E+00 | 3.60E-04 | 3.158E+00 | 3.60E-04 | 3.158E+00 | 3.42E-05 | 2.997E-01 |
| **Particulates** | | | | | | | | | | |
| Arsenic | 5.19E-06 | 4.546E-02 | 2.69E-06 | 2.352E-02 | 2.65E-06 | 2.318E-02 | 2.65E-06 | 2.318E-02 | 2.51E-07 | 2.200E-03 |
| Beryllium | 1.13E-05 | 9.895E-02 | 8.06E-08 | 7.057E-04 | 7.94E-08 | 6.954E-04 | 7.94E-08 | 6.954E-04 | 7.53E-09 | 6.601E-05 |
| Cadmium | 4.41E-05 | 3.867E-01 | 1.48E-05 | 1.296E-01 | 1.46E-05 | 1.277E-01 | 1.46E-05 | 1.277E-01 | 1.38E-06 | 1.212E-02 |
| Chromium | 4.32E-06 | 3.785E-02 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | 4.13E-04 | 3.621E+00 | 1.14E-05 | 9.997E-02 | 1.12E-05 | 9.851E-02 | 1.12E-05 | 9.851E-02 | 1.07E-06 | 9.351E-03 |
| Lead | 1.24E-04 | 1.084E+00 | 6.71E-06 | 5.881E-02 | 6.62E-06 | 5.795E-02 | 6.62E-06 | 5.795E-02 | 6.28E-07 | 5.500E-03 |
| Manganese | 3.45E-04 | 3.024E+00 | 5.11E-06 | 4.476E-02 | 5.04E-06 | 4.411E-02 | 5.04E-06 | 4.411E-02 | 4.78E-07 | 4.187E-03 |
| Mercury | 3.45E-04 | 3.024E+00 | 3.49E-06 | 3.060E-02 | 3.44E-06 | 3.016E-02 | 3.44E-06 | 3.016E-02 | 3.27E-07 | 2.862E-03 |
| Nickel | 4.41E-05 | 3.867E-01 | 2.82E-05 | 2.472E-01 | 2.78E-05 | 2.436E-01 | 2.78E-05 | 2.436E-01 | 2.64E-06 | 2.312E-02 |
| Selenium | 8.74E-05 | 7.653E-01 | 1.62E-07 | 1.416E-03 | 1.59E-07 | 1.395E-03 | 1.59E-07 | 1.395E-03 | 1.51E-08 | 1.325E-04 |
| Vanadium | N/A | N/A | 3.08E-05 | 2.700E-01 | 3.04E-05 | 2.661E-01 | 3.04E-05 | 2.661E-01 | 2.88E-06 | 2.526E-02 |

**TURBINE + Catalytic Afterburner**
**Natural Gas**
**Annual**

| | |
|---|---|
| **MMBtu (2018):**[1] | 2,057,150 |
| **hr/year:** | 8760 |
| **MMBtu/hr (HHV):** | **234.83** |
| **Btu/scf (HHV):** | 1000 |

| | BOILER #2 | BOILER #3 | BOILER #4 | Clark Kerr Boiler |
|---|---|---|---|---|
| | Natural Gas | Natural Gas | Natural Gas | Natural Gas |
| **Maximum MMBTU/hr:** | **137.0** | **135.0** | **135.0** | |
| **Percent of Capacity** | **10%** | **10%** | **10%** | n/a |
| **MMBTU/hr:** | **13.7** | **13.5** | **13.5** | **1.3** |

Current Auxilary Boiler permit conditions limit operation to 10% capacity.

**Clark Kerr Boiler Therms:** 112,254

## UC BERKELEY TOXIC AIR EMISSIONS FROM COMBUSTION SOURCES
## LRDP - MAXIMUM HOURLY

| Pollutant | Turbines | | Boiler #2 | | Boiler #3 | | Boiler #4 | | Clark Kerr Boiler | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Natural Gas | | Natural Gas | | Natural Gas | | Natural Gas | | Natural Gas | |
| | lb/hr | g/s | lb/hr | g/s | lb/hr | g/s | lb/hr | g/s | lb/hr | g/s |
| Acetaldehyde | 4.38E-02 | 5.521E-03 | 5.78E-04 | 7.28E-05 | 5.70E-04 | 7.18E-05 | 5.70E-04 | 7.18E-05 | 4.43E-05 | 5.58E-06 |
| Acrolein | 6.02E-03 | 7.581E-04 | 3.63E-04 | 4.57E-05 | 3.58E-04 | 4.51E-05 | 3.58E-04 | 4.51E-05 | 2.78E-05 | 3.51E-06 |
| Benzene | 2.91E-02 | 3.671E-03 | 1.07E-03 | 1.35E-04 | 1.06E-03 | 1.33E-04 | 1.06E-03 | 1.33E-04 | 8.23E-05 | 1.04E-05 |
| 1,3 Butadiene | 1.98E-05 | 2.501E-06 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Ethylbenzene | 5.76E-03 | 7.252E-04 | 1.28E-03 | 1.61E-04 | 1.26E-03 | 1.58E-04 | 1.26E-03 | 1.58E-04 | 9.78E-05 | 1.23E-05 |
| Fomaldehyde | 2.20E+00 | 2.777E-01 | 2.97E-02 | 3.75E-03 | 2.93E-02 | 3.69E-03 | 2.93E-02 | 3.69E-03 | 2.28E-03 | 2.87E-04 |
| Hexane3 | 8.31E-02 | 1.047E-02 | 8.47E-04 | 1.07E-04 | 8.34E-04 | 1.05E-04 | 8.34E-04 | 1.05E-04 | 6.49E-05 | 8.18E-06 |
| Naphthalene | 5.33E-04 | 6.716E-05 | 8.19E-05 | 1.03E-05 | 8.07E-05 | 1.02E-05 | 8.07E-05 | 1.02E-05 | 6.28E-06 | 7.91E-07 |
| PAHs (BaP Equivalents) | 6.93E-06 | 8.735E-07 | 9.04E-07 | 1.14E-07 | 8.91E-07 | 1.12E-07 | 8.91E-07 | 1.12E-07 | 6.93E-08 | 8.73E-09 |
| Phenanthrene | 2.47E-01 | 3.115E-02 | 9.82E-02 | 1.24E-02 | 9.68E-02 | 1.22E-02 | 9.68E-02 | 1.22E-02 | 7.53E-03 | 9.49E-04 |
| Proylene Oxide | 6.38E-03 | 8.034E-04 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Toluene | 2.28E-02 | 2.868E-03 | 4.92E-03 | 6.20E-04 | 4.85E-03 | 6.11E-04 | 4.85E-03 | 6.11E-04 | 3.77E-04 | 4.75E-05 |
| Xylenes | 8.37E-03 | 1.055E-03 | 3.66E-03 | 4.61E-04 | 3.60E-03 | 4.54E-04 | 3.60E-03 | 4.54E-04 | 2.80E-04 | 3.53E-05 |
| **Particulates** | | | | | | | | | | |
| Arsenic | 7.23E-06 | 9.106E-07 | 2.69E-05 | 3.38E-06 | 2.65E-05 | 3.33E-06 | 2.65E-05 | 3.33E-06 | 2.06E-06 | 2.59E-07 |
| Beryllium | 1.57E-05 | 1.982E-06 | 8.06E-07 | 1.02E-07 | 7.94E-07 | 1.00E-07 | 7.94E-07 | 1.00E-07 | 6.17E-08 | 7.78E-09 |
| Cadmium | 6.15E-05 | 7.746E-06 | 1.48E-04 | 1.86E-05 | 1.46E-04 | 1.84E-05 | 1.46E-04 | 1.84E-05 | 1.13E-05 | 1.43E-06 |
| Chromium | 6.02E-06 | 7.581E-07 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Copper | 5.76E-04 | 7.252E-05 | 1.14E-04 | 1.44E-05 | 1.12E-04 | 1.42E-05 | 1.12E-04 | 1.42E-05 | 8.75E-06 | 1.10E-06 |
| Lead | 1.72E-04 | 2.171E-05 | 6.71E-05 | 8.46E-06 | 6.62E-05 | 8.33E-06 | 6.62E-05 | 8.33E-06 | 5.15E-06 | 6.48E-07 |
| Manganese | 4.81E-04 | 6.057E-05 | 5.11E-05 | 6.44E-06 | 5.04E-05 | 6.34E-06 | 5.04E-05 | 6.34E-06 | 3.92E-06 | 4.93E-07 |
| Mercury | 4.81E-04 | 6.057E-05 | 3.49E-05 | 4.40E-06 | 3.44E-05 | 4.34E-06 | 3.44E-05 | 4.34E-06 | 2.68E-06 | 3.37E-07 |
| Nickel | 6.15E-05 | 7.746E-06 | 2.82E-04 | 3.56E-05 | 2.78E-04 | 3.50E-05 | 2.78E-04 | 3.50E-05 | 2.16E-05 | 2.73E-06 |
| Selenium | 1.22E-04 | 1.533E-05 | 1.62E-06 | 2.04E-07 | 1.59E-06 | 2.01E-07 | 1.59E-06 | 2.01E-07 | 1.24E-07 | 1.56E-08 |
| Vanadium | N/A | N/A | 3.08E-04 | 3.88E-05 | 3.04E-04 | 3.83E-05 | 3.04E-04 | 3.83E-05 | 2.36E-05 | 2.98E-06 |

**TURBINE + Catalytic Afterburner**
**Natural Gas**
**Maximum Hourly**

| | |
|---|---|
| **MMBtu/hr (HHV):** | **327.0** |
| Btu/scf (HHV): | 1000 |
| MMscf/hr: | 0.327 |

| | BOILER #2 | BOILER #3 | BOILER #4 | Clark Kerr Boiler |
|---|---|---|---|---|
| | Natural Gas | Natural Gas | Natural Gas | Natural Gas |
| **Maximum Hourly** | | | | |
| **MMBtu/hr (HHV):** | **137.0** | **135.0** | **135.0** | **10.5** |
| Btu/scf (HHV): | 1000 | 1000 | 1000 | 1000 |
| MMscf/hr: | 0.137 | 0.135 | 0.135 | 0.011 |

2020 BAAQMD Permit, Turbine: 243 MMBTU/hr
2020 BAAQMD Permit, Duct Burner: 84 MMBTU/hr

# Appendix HRA_B. Air Dispersion Model Output

# Control Pathway

AERMOD

## Dispersion Options

**Titles**

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Dispersion Options**

- [x] Regulatory Default
- [ ] Non-Default Options

**Dispersion Coefficient**

Urban

Population:
Name (Optional):
Roughness Length:

**Output Type**

- [x] Concentration
- [ ] Total Deposition (Dry & Wet)
- [ ] Dry Deposition
- [ ] Wet Deposition

**Plume Depletion**

- [ ] Dry Removal
- [ ] Wet Removal

**Output Warnings**

- [ ] No Output Warnings
- [ ] Non-fatal Warnings for Non-sequential Met Data

## Pollutant / Averaging Time / Terrain Options

**Pollutant Type**

**Averaging Time Options**

Hours

| 1 | 2 | 3 | 4 | 6 | 8 | 12 | 24 |
|---|---|---|---|---|---|---|---|
| ■ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

- [ ] Month
- [x] Period
- [ ] Annual

**Exponential Decay**

Half Life of 4 hrs will be used
Optional Coverage

**Terrain Height Options**

- [ ] Flat
- [x] Elevated

SO: Meters
RE: Meters
TG: Meters

**Flagpole Receptors**

- [x] Yes
- [ ] No

Default Height = 1.50 m

# Meteorology Pathway

AERMOD

## Met Input Data

### Surface Met Data

Filename: met\724930.SFC

Format Type: Default AERMET format

### Profile Met Data

Filename: met\724930.PFL

Format Type: Default AERMET format

### Wind Speed

☐ Wind Speeds are Vector Mean (Not Scalar Means)

### Wind Direction

Rotation Adjustment [deg]:

### Potential Temperature Profile

Base Elevation above MSL (for Primary Met Tower): 1.80

### Meteorological Station Data

| Stations | Station No. | Year | X Coordinate [m] | Y Coordinate [m] | Station Name |
|---|---|---|---|---|---|
| Surface | | 2009 | | | OAKLAND/WSO AP |
| Upper Air | | 2009 | | | OAKLAND/WSO AP |

## Data Period

### Data Period to Process

Start Date: 1/1/2009 Start Hour: 1 End Date: 1/2/2014 End Hour: 24

## Wind Speed Categories

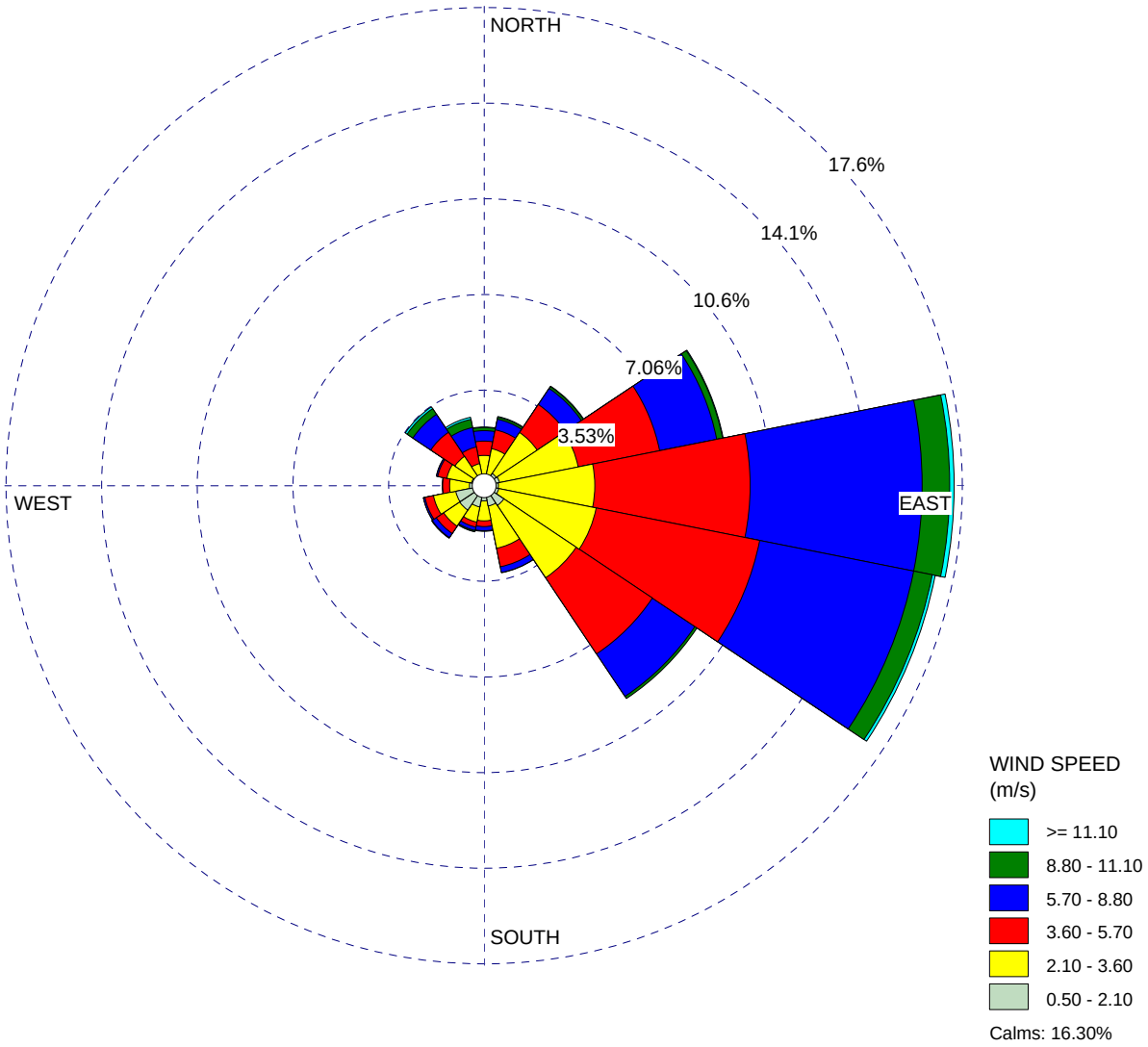
| Stability Category | Wind Speed [m/s] | Stability Category | Wind Speed [m/s] |
|---|---|---|---|
| A | 1.54 | D | 8.23 |
| B | 3.09 | E | 10.8 |
| C | 5.14 | F | No Upper Bound |

WIND ROSE PLOT:

**Metro Oakland International Airport Meteorological Station 2009-2013**

DISPLAY:

**Wind Speed**
**Flow Vector (blowing to)**




| COMMENTS: | DATA PERIOD: | COMPANY NAME: | |
|---|---|---|---|
| All Hours | **Start Date: 1/1/2009 - 00:00**<br>**End Date: 1/2/2014 - 23:59** | **PlaceWorks** | |
| | | MODELER:<br>**SB** | |
| | CALM WINDS:<br>**16.30%** | TOTAL COUNT:<br>**43349 hrs.** | |
| | AVG. WIND SPEED:<br>**3.78 m/s** | DATE:<br>**12/28/2020** | PROJECT NO.:<br>**UCB-01** |

WRPLOT View - Lakes Environmental Software

# Source Pathway - Source Inputs

AERMOD

## Point Sources

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | MHSTK1 | 564704.90 | 4191991.90 | 76.51 | 7.61 | 1.00000 | 293.15 | 17.25 | 0.34 |
| POINT | MHSTK2 | 564704.99 | 4192037.87 | 76.97 | 10.89 | 1.00000 | 293.15 | 17.25 | 0.29 |
| POINT | MHSTK3 | 564701.22 | 4192038.06 | 76.69 | 10.89 | 1.00000 | 293.15 | 17.25 | 0.48 |
| POINT | MHSTK4 | 564706.82 | 4191984.32 | 76.53 | 15.61 | 1.00000 | 293.15 | 17.25 | 0.33 |
| POINT | MHSTK6 | 564707.56 | 4192007.88 | 77.10 | 10.94 | 1.00000 | 293.15 | 17.25 | 0.34 |
| POINT | KHSTK1 | 564659.64 | 4192062.80 | 75.24 | 18.45 | 1.00000 | 293.15 | 1.28 | 2.76 |
| POINT | KHSTK2 | 564656.79 | 4192091.38 | 73.65 | 18.45 | 1.00000 | 293.15 | 1.28 | 2.76 |
| POINT | KHSTK3 | 564648.95 | 4192062.02 | 75.30 | 18.45 | 1.00000 | 293.15 | 1.28 | 2.76 |
| POINT | KHSTK4 | 564647.58 | 4192090.84 | 73.27 | 18.45 | 1.00000 | 293.15 | 1.28 | 2.76 |
| POINT | BHSTK1 | 564593.79 | 4192079.05 | 71.38 | 27.85 | 1.00000 | 293.15 | 2.78 | 1.26 |
| POINT | BHSTK2 | 564589.36 | 4192088.03 | 70.41 | 29.68 | 1.00000 | 293.15 | 2.78 | 1.26 |
| POINT | BHSTK3 | 564610.01 | 4192089.03 | 71.63 | 29.68 | 1.00000 | 293.15 | 2.78 | 1.26 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | BHSTK4 | 564615.35 | 4192081.97 | 72.25 | 33.34 | 1.00000 | 293.15 | 2.78 | 0.37 |
| POINT | BHSTK5 | 564602.30 | 4192079.52 | 71.70 | 33.34 | 1.00000 | 293.15 | 2.78 | 0.37 |
| POINT | VLSBSTK1 | 564838.33 | 4191824.35 | 72.62 | 27.04 | 1.00000 | 293.15 | 3.97 | 1.22 |
| POINT | VLSBSTK2 | 564860.25 | 4191761.31 | 71.01 | 27.04 | 1.00000 | 293.15 | 3.97 | 1.22 |
| POINT | VLSBSTK3 | 564951.63 | 4191790.30 | 74.55 | 27.04 | 1.00000 | 293.15 | 3.97 | 1.22 |
| POINT | VLSBSTK4 | 564935.40 | 4191853.35 | 74.69 | 27.04 | 1.00000 | 293.15 | 3.97 | 1.22 |
| POINT | LSASTK1 | 564798.44 Weill Hall | 4191816.12 | 70.86 | 28.31 | 1.00000 | 293.15 | 5.18 | 1.22 |
| POINT | LSASTK2 | 564789.92 Weill Hall | 4191813.84 | 70.40 | 28.31 | 1.00000 | 293.15 | 5.18 | 1.22 |
| POINT | LSASTK3 | 564807.55 | 4191785.76 | 70.19 | 28.31 | 1.00000 | 293.15 | 5.18 | 1.22 |
| POINT | LSASTK4 | 564798.51 | 4191783.89 | 69.48 | 28.31 | 1.00000 | 293.15 | 5.18 | 1.22 |
| POINT | LSASTK5 | 564808.62 | 4191781.51 | 70.17 | 28.31 | 1.00000 | 293.15 | 5.18 | 1.22 |
| POINT | LSASTK6 | 564801.76 | 4191776.67 | 69.58 | 28.31 | 1.00000 | 293.15 | 5.18 | 1.22 |
| POINT | LSASTK7 | 564803.45 | 4191775.42 | 69.66 | 28.31 | 1.00000 | 293.15 | 5.18 | 0.30 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | LEWHSTK1 | 565506.23 | 4191982.72 | 107.13 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LEWHSTK2 | 565497.84 | 4191993.52 | 107.38 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LEWHSTK3 | 565494.35 | 4191997.91 | 107.45 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LEWHSTK4 | 565491.60 | 4192001.94 | 107.55 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LEWHSTK5 | 565503.87 | 4191993.68 | 108.05 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LEWHSTK6 | 565512.94 | 4191984.07 | 108.05 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LEWHSTK7 | 565507.64 | 4191990.52 | 108.12 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LEWHSTK8 | 565501.04 | 4192002.97 | 108.72 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.30 |
| POINT | LEWHSTK9 | 565495.92 | 4192005.66 | 108.42 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LATHSTK1 | 565458.47 | 4192001.72 | 105.76 | 42.37 | 1.00000 | 293.15 | 6.28 | 0.34 |
| POINT | LATHSTK2 | 565463.05 | 4192012.69 | 106.35 | 36.88 | 1.00000 | 293.15 | 6.28 | 0.70 |
| POINT | LATHSTK3 | 565434.97 | 4192002.72 | 105.91 | 36.88 | 1.00000 | 293.15 | 6.28 | 0.48 |
| POINT | LATHSTK4 | 565418.47 | 4192001.97 | 106.10 | 37.19 | 1.00000 | 293.15 | 6.28 | 0.96 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | LATHSTK5 | 565443.10 | 4191996.72 | 105.52 | 42.37 | 1.00000 | 293.15 | 6.28 | 0.70 |
| POINT | LATHSTK6 | 565430.72 | 4191978.47 | 104.56 | 38.40 | 1.00000 | 293.15 | 6.28 | 0.74 |
| POINT | LATHSTK7 | 565448.35 | 4191983.97 | 104.78 | 38.40 | 1.00000 | 293.15 | 6.28 | 0.31 |
| POINT | LATHSTK8 | 565465.72 | 4191989.47 | 105.15 | 38.40 | 1.00000 | 293.15 | 6.28 | 0.70 |
| POINT | TANHSTKA | 565395.47 | 4191995.47 | 105.60 | 39.32 | 1.00000 | 293.15 | 2.94 | 1.69 |
| POINT | TANHSTKB | 565400.16 | 4191996.47 | 105.71 | 39.32 | 1.00000 | 293.15 | 2.94 | 1.69 |
| POINT | TANHSTKC | 565397.54 | 4191989.72 | 105.30 | 39.32 | 1.00000 | 293.15 | 2.94 | 1.69 |
| POINT | TANHSTKD | 565402.47 | 4191990.72 | 105.40 | 39.32 | 1.00000 | 293.15 | 2.94 | 1.69 |
| POINT | HHSTKA | 565442.83 | 4191954.10 | 103.08 | 20.12 | 1.00000 | 293.15 | 4.15 | 1.52 |
| POINT | HHSTKB | 565467.71 | 4191961.35 | 103.43 | 20.12 | 1.00000 | 293.15 | 4.15 | 1.52 |
| POINT | HHSTKC | 565478.89 | 4191922.35 | 101.45 | 20.12 | 1.00000 | 293.15 | 4.15 | 1.52 |
| POINT | HHSTKD | 565455.33 | 4191915.10 | 101.10 | 20.12 | 1.00000 | 293.15 | 4.15 | 1.52 |
| POINT | HHSTKE | 565445.52 | 4191951.10 | 102.90 | 20.12 | 1.00000 | 293.15 | 4.15 | 0.81 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | GHSTK1 | 565410.54 | 4191958.47 | 103.47 | 16.06 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK2 | 565413.97 | 4191947.22 | 102.78 | 16.06 | 1.00000 | 293.15 | 5.92 | 0.25 |
| POINT | GHSTK3 | 565415.85 | 4191941.47 | 102.41 | 16.37 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK4 | 565418.10 | 4191940.22 | 102.32 | 15.91 | 1.00000 | 293.15 | 5.92 | 0.31 |
| POINT | GHSTK5 | 565418.29 | 4191934.72 | 101.97 | 16.06 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK6 | 565403.66 | 4191957.72 | 103.43 | 16.12 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK7 | 565404.54 | 4191955.47 | 103.30 | 16.37 | 1.00000 | 293.15 | 5.92 | 0.84 |
| POINT | GHSTK8 | 565407.10 | 4191946.72 | 102.76 | 16.00 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK9 | 565408.66 | 4191942.72 | 102.50 | 16.37 | 1.00000 | 293.15 | 5.92 | 0.26 |
| POINT | GHSTK10 | 565410.35 | 4191937.72 | 102.16 | 16.06 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK11 | 565413.10 | 4191930.72 | 101.69 | 16.22 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK12 | 565412.41 | 4191927.97 | 101.51 | 16.06 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK13 | 565420.35 | 4191928.22 | 101.56 | 15.91 | 1.00000 | 293.15 | 5.92 | 0.40 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | CHSTK1 | 565286.19<br>Cory Hall | 4192221.46 | 110.72 | 26.85 | 1.00000 | 293.15 | 2.00 | 1.00 |
| POINT | HESSTK1 | 565136.22<br>Hess, McCone, O'Brien | 4192113.95 | 97.89 | 15.39 | 1.00000 | 293.15 | 2.00 | 1.00 |
| POINT | HILSTK1 | 564780.81<br>Hilgard | 4192014.63 | 81.38 | 14.96 | 1.00000 | 293.15 | 2.00 | 1.00 |
| POINT | MULSTK1 | 564688.52<br>Mulford | 4191935.54 | 74.55 | 17.24 | 1.00000 | 293.15 | 2.00 | 1.00 |
| POINT | WELSTK1 | 564839.94<br>Wellman | 4191994.88 | 81.32 | 5.89 | 1.00000 | 293.15 | 2.00 | 1.00 |
| POINT | SDH1 | 565233.06<br>Sutardja Dai | 4192211.94 | 101.90 | 33.79 | 1.00000 | 293.15 | 12.66 | 1.63 |
| POINT | SDH2 | 565231.17 | 4192211.48 | 102.34 | 33.79 | 1.00000 | 293.15 | 12.66 | 1.63 |
| POINT | SDH3 | 565245.36 | 4192179.61 | 100.11 | 33.79 | 1.00000 | 293.15 | 13.62 | 0.86 |
| POINT | SDH4 | 565244.25 | 4192179.22 | 99.86 | 33.79 | 1.00000 | 293.15 | 13.62 | 0.86 |
| POINT | LKSSTK1 | 564620.37 | 4191983.26 | 70.15 | 33.50 | 1.00000 | 293.00 | 15.25 | 0.89 |
| POINT | LKSSTK2 | 564621.00 | 4191980.11 | 70.56 | 33.50 | 1.00000 | 293.00 | 15.25 | 0.89 |
| POINT | LKSSTK3 | 564621.42 | 4191976.54 | 71.01 | 33.50 | 1.00000 | 293.00 | 15.25 | 0.89 |
| POINT | NWAF_1 | 564612.19 | 4191982.63 | 69.18 | 33.50 | 1.00000 | 293.00 | 15.24 | 0.77 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | NWAF_2 | 564612.40 | 4191979.06 | 69.42 | 33.50 | 1.00000 | 293.00 | 15.24 | 0.77 |
| POINT | STAN_1 | 565430.65 | 4192108.07 | 113.42 | 35.36 | 1.00000 | 293.00 | 16.17 | 1.40 |
| POINT | STAN_2 | 565436.52 | 4192109.95 | 114.24 | 35.36 | 1.00000 | 293.15 | 16.17 | 0.30 |
| POINT | STAN_3 | 565432.02 | 4192103.73 | 113.25 | 35.36 | 1.00000 | 293.15 | 15.40 | 0.30 |
| POINT | STAN_4 | 565433.62 | 4192098.93 | 113.06 | 35.36 | 1.00000 | 293.15 | 15.40 | 1.40 |
| POINT | STAN_5 | 565435.32 | 4192094.23 | 112.95 | 35.36 | 1.00000 | 293.15 | 15.40 | 1.40 |
| POINT | STAN_6 | 565436.92 | 4192089.53 | 112.85 | 35.36 | 1.00000 | 293.15 | 15.40 | 1.40 |
| POINT | STAN_7 | 565443.52 | 4192091.33 | 113.84 | 35.36 | 1.00000 | 293.15 | 15.40 | 1.40 |
| POINT | STAN_8 | 565441.73 | 4192096.11 | 113.95 | 35.36 | 1.00000 | 293.15 | 15.40 | 1.40 |
| POINT | STAN_9 | 565440.12 | 4192100.93 | 114.07 | 35.36 | 1.00000 | 293.15 | 15.40 | 1.40 |
| POINT | STAN_10 | 565438.42 | 4192105.63 | 114.18 | 35.36 | 1.00000 | 293.15 | 15.40 | 1.40 |
| POINT | OXFTRACT | 564460.65<br>Oxford Tract | 4192229.19 | 71.00 | 4.57 | 1.00000 | 293.15 | 15.00 | 0.15 |
| POINT | IGISTK | 564475.40<br>Innovative Genomics Institute | 4192067.78 | 65.75 | 28.96 | 1.00000 | 293.15 | 15.00 | 0.30 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | COGEN | 564778.68<br>Turbine | 4191677.89 | 71.37 | 12.77 | 1.00000 | 430.37 | 10.45 | 2.28 |
| POINT | BOILER#2 | 564770.52 | 4191696.81 | 70.44 | 8.80 | 1.00000 | 522.82 | 7.97 | 1.52 |
| POINT | BOILER#3 | 564776.24 | 4191699.31 | 70.52 | 8.80 | 1.00000 | 554.11 | 10.53 | 1.52 |
| POINT | BOILER#4 | 564792.06 | 4191678.97 | 71.65 | 8.80 | 1.00000 | 566.65 | 12.63 | 1.52 |
| POINT | POURING | 564748.71 | 4191665.20 | 70.11 | 14.94 | 1.00000 | 293.15 | 4.62 | 0.56 |
| POINT | ENG_62 | 565478.08 | 4191276.20 | 83.54 | 4.57 | 1.00000 | 800.37 | 146.01 | 0.13 |
| POINT | ENG_63 | 564576.96 | 4192088.53 | 69.54 | 4.57 | 1.00000 | 799.85 | 152.00 | 0.13 |
| POINT | ENG_64 | 565356.16 | 4191884.27 | 98.70 | 3.05 | 1.00000 | 817.07 | 58.47 | 0.08 |
| POINT | ENG_105 | 564852.17 | 4191637.00 | 73.19 | 4.57 | 1.00000 | 810.96 | 70.10 | 0.23 |
| POINT | ENG_106 | 564896.33 | 4191805.60 | 74.79 | 30.48 | 1.00000 | 810.96 | 70.10 | 0.20 |
| POINT | ENG_107 | 564673.63 | 4192106.38 | 74.76 | 0.00 | 1.00000 | 810.96 | 70.10 | 0.18 |
| POINT | ENG_108 | 564849.86 | 4191764.62 | 70.92 | 7.62 | 1.00000 | 810.96 | 70.10 | 0.18 |
| POINT | ENG_109 | 565414.89 | 4191972.13 | 104.29 | 3.05 | 1.00000 | 810.96 | 70.10 | 0.15 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | ENG_110 | 564558.20 | 4192072.16 | 68.68 | 4.57 | 1.00000 | 810.96 | 70.10 | 0.10 |
| POINT | ENG_111 | 564997.38 | 4191957.38 | 78.80 | 3.05 | 1.00000 | 810.96 | 70.10 | 0.11 |
| POINT | ENG_112 | 565449.06 | 4191407.88 | 86.83 | 3.05 | 1.00000 | 810.93 | 70.10 | 0.10 |
| POINT | ENG_113 | 565579.88 | 4191394.38 | 92.53 | 3.05 | 1.00000 | 810.93 | 70.10 | 0.10 |
| POINT | ENG_114 | 565488.97 | 4191213.11 | 84.67 | 3.05 | 1.00000 | 810.93 | 70.10 | 0.10 |
| POINT | ENG_115 | 565600.02 | 4191206.28 | 90.55 | 3.05 | 1.00000 | 810.93 | 70.10 | 0.10 |
| POINT | ENG_117 | 565482.19 | 4191808.63 | 100.80 | 3.05 | 1.00000 | 810.96 | 70.10 | 0.10 |
| POINT | ENG_118 | 564559.59 | 4192085.95 | 68.46 | 4.57 | 1.00000 | 810.96 | 70.10 | 0.13 |
| POINT | ENG_120 | 565209.70 | 4191622.48 | 86.25 | 3.05 | 1.00000 | 810.96 | 70.10 | 0.08 |
| POINT | ENG_121 | 565814.14 | 4191631.61 | 115.55 | 3.05 | 1.00000 | 810.93 | 70.10 | 0.08 |
| POINT | ENG_123 | 565195.54<br>Doe Mem Library | 4191860.22 | 92.21 | 0.33 | 1.00000 | 810.93 | 0.01 | 6.40 |
| POINT | ENG_125 | 564714.94 | 4191655.56 | 68.86 | 3.05 | 1.00000 | 810.96 | 70.10 | 0.08 |
| POINT | ENG_126 | 565044.56 | 4191637.76 | 77.75 | 0.00 | 1.00000 | 810.96 | 70.10 | 0.08 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | ENG_128 | 565408.14 | 4192166.71 | 116.66 | 3.05 | 1.00000 | 810.96 | 70.10 | 0.05 |
| POINT | ENG_129 | 565300.50 | 4191904.85 | 98.33 | 2.44 | 1.00000 | 810.96 | 70.10 | 0.05 |
| POINT | ENG_130 | 565443.20 | 4191921.65 | 101.31 | 2.44 | 1.00000 | 815.40 | 134.54 | 0.08 |
| POINT | ENG_131 | 564857.36 | 4191638.09 | 73.27 | 1.83 | 1.00000 | 817.07 | 58.47 | 0.08 |
| POINT | ENG_132 | 564706.38 | 4191977.72 | 76.33 | 1.83 | 1.00000 | 817.07 | 58.47 | 0.08 |
| POINT | E134_133 | 565285.79 | 4192154.02 | 104.48 | 3.05 | 1.00000 | 769.29 | 135.05 | 0.13 |
| POINT | ENG_STNL | 565435.33 | 4192121.20 | 114.95 | 31.39 | 1.00000 | 725.93 | 25.01 | 0.61 |
| POINT | ENG_116 | 564682.39<br>Tang | 4191368.85 | 64.35 | 4.60 | 1.00000 | 810.93 | 70.10 | 0.10 |
| POINT | UNDHLENG | 565575.23 | 4191361.07 | 90.67 | 10.67 | 1.00000 | 705.37 | 24.20 | 0.25 |
| POINT | RES2ENG | 565487.60 | 4191223.35 | 84.78 | 2.74 | 1.00000 | 807.59 | 56.20 | 0.15 |
| POINT | RES1ENG | 565464.89 | 4191427.59 | 89.15 | 2.74 | 1.00000 | 807.59 | 56.20 | 0.15 |
| POINT | RES3ENG | 565011.52 | 4191333.97 | 74.42 | 2.13 | 1.00000 | 810.93 | 59.08 | 0.13 |
| POINT | CITENG | 565205.04<br>Sutardaj Dai | 4192160.11 | 101.67 | 24.99 | 1.00000 | 679.54 | 164.20 | 0.20 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | ENG_LKS | 564621.42 | 4192030.18 | 71.33 | 1.27 | 1.00000 | 738.15 | 17.80 | 0.66 |
| POINT | WAR_GEN | 564472.93 | 4192140.68 | 67.28 | 13.72 | 1.00000 | 723.15 | 21.46 | 0.07 |
| POINT | ENG_MCCN | 565095.86 | 4192090.06 | 94.87 | 2.13 | 1.00000 | 810.93 | 59.08 | 0.13 |
| | | McCone | | | | | | | |
| POINT | SSSADD | 566508.52 | 4192825.10 | 394.33 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |
| | | Silver Space Sciences Addition | | | | | | | |
| POINT | 4THST | 561389.37 | 4191902.73 | 2.95 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |
| | | 4th St Campus Shared Services | | | | | | | |
| POINT | CH_BOW | 565360.68 | 4191361.86 | 81.27 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |
| | | Channing and Bowditch | | | | | | | |
| POINT | CARLETON | 564389.50 | 4190572.41 | 46.88 | 2.44 | 1.00000 | 811.00 | 33.53 | 0.10 |
| | | 2000 Carleton | | | | | | | |
| POINT | GOLDBEAR | 564048.59 | 4191887.84 | 55.24 | 0.74 | 1.00000 | 811.00 | 70.10 | 0.10 |
| | | Golden Bear Center | | | | | | | |
| POINT | CLKERR | 566073.45 | 4190940.65 | 107.51 | 3.05 | 1.00000 | 811.00 | 40.46 | 0.15 |
| | | Clark Kerr | | | | | | | |
| POINT | BARROWS | 565234.53 | 4191627.09 | 87.95 | 2.44 | 1.00000 | 768.71 | 29.48 | 0.08 |
| | | Barrows Hall | | | | | | | |
| POINT | IGI_GEN | 564474.43 | 4192072.84 | 65.88 | 32.92 | 1.00000 | 734.26 | 30.67 | 0.30 |
| | | IGI generator | | | | | | | |
| POINT | MAXMC | 565302.22 | 4191238.61 | 78.37 | 2.44 | 1.00000 | 853.15 | 57.27 | 0.10 |
| | | Maximino Martinez Commons | | | | | | | |
| POINT | LAWHOS | 566298.51 | 4192646.97 | 340.03 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |
| | | Lawrence Hall of Science | | | | | | | |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | MEMSTAD | 565717.82 | 4191956.04 | 121.16 | 3.66 | 1.00000 | 749.82 | 50.34 | 0.30 |
| | | Memorial Stadium | | | | | | | |
| POINT | CMPBLGEN | 565324.26 | 4191953.84 | 100.22 | 1.78 | 1.00000 | 853.15 | 70.70 | 0.09 |
| | | Campbell Hall | | | | | | | |
| POINT | ESH_GEN | 565022.82 | 4191501.56 | 76.67 | 7.62 | 1.00000 | 719.26 | 39.79 | 0.20 |
| | | Eshelman MLK | | | | | | | |
| POINT | BAM_GEN | 564508.55 | 4191771.46 | 61.66 | 3.23 | 1.00000 | 823.15 | 105.63 | 0.15 |
| | | Berkeley Art Museum | | | | | | | |
| POINT | CHOU_GEN | 565616.73 | 4191920.28 | 110.44 | 1.98 | 1.00000 | 703.71 | 66.40 | 0.10 |
| | | Chou Hall | | | | | | | |
| POINT | BWWEST | 564379.44 | 4191997.12 | 61.54 | 4.57 | 1.00000 | 804.26 | 96.28 | 0.15 |
| | | Berkeley Way West Gen | | | | | | | |
| POINT | ENGCOGEN | 564756.93 | 4191666.87 | 70.42 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |
| | | Co-Gen Plant Generator | | | | | | | |
| POINT | EDTRACK | 564608.66 | 4191472.50 | 63.26 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |
| | | Edwards Track portable gen | | | | | | | |
| POINT | EBRCSA | 566296.09 | 4192645.45 | 339.76 | 2.44 | 1.00000 | 797.59 | 81.46 | 0.06 |
| | | East Bay Reg. Comm. System Authority | | | | | | | |
| POINT | CKBOILER | 566083.88 | 4190896.85 | 106.95 | 7.62 | 1.00000 | 533.13 | 63.74 | 0.20 |
| | | Clark Kerr Boiler | | | | | | | |
| POINT | DONSTK1 | 565383.14 | 4192170.66 | 114.18 | 8.62 | 1.00000 | 293.15 | 3.97 | 1.00 |
| | | Donner Lab | | | | | | | |
| POINT | ARFSTK | 565628.14 | 4191685.24 | 103.78 | 8.00 | 1.00000 | 293.15 | 3.97 | 1.00 |
| | | 2251 College, Arch Research Facility | | | | | | | |
| POINT | CMPBLSTK | 565335.21 | 4191980.39 | 103.02 | 22.86 | 1.00000 | 293.15 | 3.97 | 1.00 |
| | | campbell hall | | | | | | | |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | EHSTK | 565147.46<br>etcheverry hall | 4192277.94 | 105.33 | 16.36 | 1.00000 | 293.15 | 2.00 | 1.00 |
| POINT | GPBBSTK | 564657.05<br>genetic & plant bio bldg | 4192024.55 | 75.04 | 10.06 | 1.00000 | 293.15 | 3.97 | 1.00 |
| POINT | MINORSTK | 565547.78<br>Minor Hall, Minor Add | 4191819.50 | 103.84 | 12.19 | 1.00000 | 293.15 | 3.97 | 1.00 |
| POINT | HMMBSTK | 565309.54<br>Hearst Mem Mining | 4192151.38 | 105.56 | 15.24 | 1.00000 | 293.15 | 3.97 | 1.00 |
| POINT | KROSTK | 565452.96<br>Kroeber | 4191654.75 | 95.33 | 12.19 | 1.00000 | 293.15 | 3.97 | 1.00 |
| POINT | SSLSTK | 566434.60<br>Silver Space Sciences Lab | 4192819.45 | 390.80 | 12.50 | 1.00000 | 293.15 | 3.97 | 1.00 |
| POINT | ENG_FP | 566343.59<br>fire pump | 4192989.55 | 0.00 | 2.44 | 1.00000 | 806.50 | 42.53 | 0.08 |
| POINT | ENG_P1 | 566523.77<br>portable engine 1 | 4192049.67 | 0.00 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |

## Volume Sources

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Length of Side [m] | Building Height [m] | Initial Lateral Dim. [m] | Initial Vertical Dim. [m] |
|---|---|---|---|---|---|---|---|---|---|---|
| VOLUME | MHSTK5 | 564724.45 | 4192040.52 | 78.56 | 6.95 | 1.00000 | 0.30 | Surface-Based | 0.07 | 2.42 |
| VOLUME | DH_HORIZ | 565228.51<br>Davis Hall | 4192163.46 | 101.25 | 22.86 | 1.00000 | 1.88 | Surface-Based | 0.44 | 0.87 |

# Output Pathway



## Tabular Printed Outputs

| Short Term Averaging Period | RECTABLE Highest Values Table | | | | | | | | | | MAXTABLE Maximum Values Table | DAYTABLE Daily Values Table |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th | 10th | | |
| 1 | ■ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | | No |

## Contour Plot Files (PLOTFILE)

**Path for PLOTFILES:** UCB01.AD

| Averaging Period | Source Group ID | High Value | File Name |
|---|---|---|---|
| 1 | ARFSTK | 1st | 01H1G002.PLT |
| 1 | BARROWS | 1st | 01H1G004.PLT |
| 1 | BHSTK1 | 1st | 01H1G005.PLT |
| 1 | BHSTK2 | 1st | 01H1G006.PLT |
| 1 | BHSTK3 | 1st | 01H1G007.PLT |
| 1 | BHSTK4 | 1st | 01H1G008.PLT |
| 1 | BHSTK5 | 1st | 01H1G009.PLT |
| 1 | BOILER#2 | 1st | 01H1G010.PLT |
| 1 | BOILER#3 | 1st | 01H1G011.PLT |
| 1 | BOILER#4 | 1st | 01H1G012.PLT |
| 1 | CHSTK1 | 1st | 01H1G016.PLT |
| 1 | CKBOILER | 1st | 01H1G019.PLT |
| 1 | CMPBLSTK | 1st | 01H1G021.PLT |
| 1 | COGEN | 1st | 01H1G023.PLT |
| 1 | DH_HORIZ | 1st | 01H1G024.PLT |
| 1 | DONSTK1 | 1st | 01H1G025.PLT |
| 1 | EHSTK | 1st | 01H1G029.PLT |
| 1 | GHSTK1 | 1st | 01H1G062.PLT |
| 1 | GHSTK10 | 1st | 01H1G063.PLT |
| 1 | GHSTK11 | 1st | 01H1G064.PLT |
| 1 | GHSTK12 | 1st | 01H1G065.PLT |
| 1 | GHSTK13 | 1st | 01H1G066.PLT |
| 1 | GHSTK2 | 1st | 01H1G067.PLT |
| 1 | GHSTK3 | 1st | 01H1G068.PLT |
| 1 | GHSTK4 | 1st | 01H1G069.PLT |
| 1 | GHSTK5 | 1st | 01H1G070.PLT |
| 1 | GHSTK6 | 1st | 01H1G071.PLT |
| 1 | GHSTK7 | 1st | 01H1G072.PLT |
| 1 | GHSTK8 | 1st | 01H1G073.PLT |
| 1 | GHSTK9 | 1st | 01H1G074.PLT |
| 1 | GPBBSTK | 1st | 01H1G076.PLT |
| 1 | HESSTK1 | 1st | 01H1G077.PLT |
| 1 | HHSTKA | 1st | 01H1G078.PLT |
| 1 | HHSTKB | 1st | 01H1G079.PLT |

| | | | |
|---|---|---|---|
| 1 | HHSTKC | 1st | 01H1G080.PLT |
| 1 | HHSTKD | 1st | 01H1G081.PLT |
| 1 | HHSTKE | 1st | 01H1G082.PLT |
| 1 | HILSTK1 | 1st | 01H1G083.PLT |
| 1 | HMMBSTK | 1st | 01H1G084.PLT |
| 1 | IGISTK | 1st | 01H1G085.PLT |
| 1 | KHSTK1 | 1st | 01H1G087.PLT |
| 1 | KHSTK2 | 1st | 01H1G088.PLT |
| 1 | KHSTK3 | 1st | 01H1G089.PLT |
| 1 | KHSTK4 | 1st | 01H1G090.PLT |
| 1 | KROSTK | 1st | 01H1G091.PLT |
| 1 | LATHSTK1 | 1st | 01H1G092.PLT |
| 1 | LATHSTK2 | 1st | 01H1G093.PLT |
| 1 | LATHSTK3 | 1st | 01H1G094.PLT |
| 1 | LATHSTK4 | 1st | 01H1G095.PLT |
| 1 | LATHSTK5 | 1st | 01H1G096.PLT |
| 1 | LATHSTK6 | 1st | 01H1G097.PLT |
| 1 | LATHSTK7 | 1st | 01H1G098.PLT |
| 1 | LATHSTK8 | 1st | 01H1G099.PLT |
| 1 | LEWHSTK1 | 1st | 01H1G101.PLT |
| 1 | LEWHSTK2 | 1st | 01H1G102.PLT |
| 1 | LEWHSTK3 | 1st | 01H1G103.PLT |
| 1 | LEWHSTK4 | 1st | 01H1G104.PLT |
| 1 | LEWHSTK5 | 1st | 01H1G105.PLT |
| 1 | LEWHSTK6 | 1st | 01H1G106.PLT |
| 1 | LEWHSTK7 | 1st | 01H1G107.PLT |
| 1 | LEWHSTK8 | 1st | 01H1G108.PLT |
| 1 | LEWHSTK9 | 1st | 01H1G109.PLT |
| 1 | LKSSTK1 | 1st | 01H1G110.PLT |
| 1 | LKSSTK2 | 1st | 01H1G111.PLT |
| 1 | LKSSTK3 | 1st | 01H1G112.PLT |
| 1 | LSASTK1 | 1st | 01H1G113.PLT |
| 1 | LSASTK2 | 1st | 01H1G114.PLT |
| 1 | LSASTK3 | 1st | 01H1G115.PLT |
| 1 | LSASTK4 | 1st | 01H1G116.PLT |
| 1 | LSASTK5 | 1st | 01H1G117.PLT |
| 1 | LSASTK6 | 1st | 01H1G118.PLT |
| 1 | LSASTK7 | 1st | 01H1G119.PLT |
| 1 | MHSTK1 | 1st | 01H1G122.PLT |
| 1 | MHSTK2 | 1st | 01H1G123.PLT |
| 1 | MHSTK3 | 1st | 01H1G124.PLT |
| 1 | MHSTK4 | 1st | 01H1G125.PLT |
| 1 | MHSTK5 | 1st | 01H1G126.PLT |
| 1 | MHSTK6 | 1st | 01H1G127.PLT |

| | | | |
|---|---|---|---|
| 1 | MINORSTK | 1st | 01H1G128.PLT |
| 1 | MULSTK1 | 1st | 01H1G129.PLT |
| 1 | NWAF_1 | 1st | 01H1G130.PLT |
| 1 | NWAF_2 | 1st | 01H1G131.PLT |
| 1 | OXFTRACT | 1st | 01H1G132.PLT |
| 1 | POURING | 1st | 01H1G133.PLT |
| 1 | RES1ENG | 1st | 01H1G134.PLT |
| 1 | RES2ENG | 1st | 01H1G135.PLT |
| 1 | RES3ENG | 1st | 01H1G136.PLT |
| 1 | SDH1 | 1st | 01H1G137.PLT |
| 1 | SDH2 | 1st | 01H1G138.PLT |
| 1 | SDH3 | 1st | 01H1G139.PLT |
| 1 | SDH4 | 1st | 01H1G140.PLT |
| 1 | SSLSTK | 1st | 01H1G141.PLT |
| 1 | STAN_1 | 1st | 01H1G143.PLT |
| 1 | STAN_10 | 1st | 01H1G144.PLT |
| 1 | STAN_2 | 1st | 01H1G145.PLT |
| 1 | STAN_3 | 1st | 01H1G146.PLT |
| 1 | STAN_4 | 1st | 01H1G147.PLT |
| 1 | STAN_5 | 1st | 01H1G148.PLT |
| 1 | STAN_6 | 1st | 01H1G149.PLT |
| 1 | STAN_7 | 1st | 01H1G150.PLT |
| 1 | STAN_8 | 1st | 01H1G151.PLT |
| 1 | STAN_9 | 1st | 01H1G152.PLT |
| 1 | TANHSTKA | 1st | 01H1G153.PLT |
| 1 | TANHSTKB | 1st | 01H1G154.PLT |
| 1 | TANHSTKC | 1st | 01H1G155.PLT |
| 1 | TANHSTKD | 1st | 01H1G156.PLT |
| 1 | UNDHLENG | 1st | 01H1G157.PLT |
| 1 | VLSBSTK1 | 1st | 01H1G158.PLT |
| 1 | VLSBSTK2 | 1st | 01H1G159.PLT |
| 1 | VLSBSTK3 | 1st | 01H1G160.PLT |
| 1 | VLSBSTK4 | 1st | 01H1G161.PLT |
| 1 | WELSTK1 | 1st | 01H1G163.PLT |
| Period | 4THST | N/A | PE00G001.PLT |
| Period | ARFSTK | N/A | PE00G002.PLT |
| Period | BAM_GEN | N/A | PE00G003.PLT |
| Period | BARROWS | N/A | PE00G004.PLT |
| Period | BHSTK1 | N/A | PE00G005.PLT |
| Period | BHSTK2 | N/A | PE00G006.PLT |
| Period | BHSTK3 | N/A | PE00G007.PLT |
| Period | BHSTK4 | N/A | PE00G008.PLT |
| Period | BHSTK5 | N/A | PE00G009.PLT |
| Period | BOILER#2 | N/A | PE00G010.PLT |

| | | | |
|---|---|---|---|
| Period | BOILER#3 | N/A | PE00G011.PLT |
| Period | BOILER#4 | N/A | PE00G012.PLT |
| Period | BWWEST | N/A | PE00G013.PLT |
| Period | CARLETON | N/A | PE00G014.PLT |
| Period | CHOU_GEN | N/A | PE00G015.PLT |
| Period | CHSTK1 | N/A | PE00G016.PLT |
| Period | CH_BOW | N/A | PE00G017.PLT |
| Period | CITENG | N/A | PE00G018.PLT |
| Period | CKBOILER | N/A | PE00G019.PLT |
| Period | CLKERR | N/A | PE00G020.PLT |
| Period | CMPBLSTK | N/A | PE00G021.PLT |
| Period | CMPBL_GE | N/A | PE00G022.PLT |
| Period | COGEN | N/A | PE00G023.PLT |
| Period | DH_HORIZ | N/A | PE00G024.PLT |
| Period | DONSTK1 | N/A | PE00G025.PLT |
| Period | E134_133 | N/A | PE00G026.PLT |
| Period | EBRCSA | N/A | PE00G027.PLT |
| Period | EDTRACK | N/A | PE00G028.PLT |
| Period | EHSTK | N/A | PE00G029.PLT |
| Period | ENG_105 | N/A | PE00G030.PLT |
| Period | ENG_106 | N/A | PE00G031.PLT |
| Period | ENG_107 | N/A | PE00G032.PLT |
| Period | ENG_108 | N/A | PE00G033.PLT |
| Period | ENG_109 | N/A | PE00G034.PLT |
| Period | ENG_110 | N/A | PE00G035.PLT |
| Period | ENG_111 | N/A | PE00G036.PLT |
| Period | ENG_112 | N/A | PE00G037.PLT |
| Period | ENG_113 | N/A | PE00G038.PLT |
| Period | ENG_114 | N/A | PE00G039.PLT |
| Period | ENG_115 | N/A | PE00G040.PLT |
| Period | ENG_116 | N/A | PE00G041.PLT |
| Period | ENG_117 | N/A | PE00G042.PLT |
| Period | ENG_118 | N/A | PE00G043.PLT |
| Period | ENG_120 | N/A | PE00G044.PLT |
| Period | ENG_121 | N/A | PE00G045.PLT |
| Period | ENG_123 | N/A | PE00G046.PLT |
| Period | ENG_125 | N/A | PE00G047.PLT |
| Period | ENG_126 | N/A | PE00G048.PLT |
| Period | ENG_128 | N/A | PE00G049.PLT |
| Period | ENG_129 | N/A | PE00G050.PLT |
| Period | ENG_130 | N/A | PE00G051.PLT |
| Period | ENG_131 | N/A | PE00G052.PLT |
| Period | ENG_132 | N/A | PE00G053.PLT |
| Period | ENG_62 | N/A | PE00G054.PLT |

| | | | |
|---|---|---|---|
| Period | ENG_63 | N/A | PE00G055.PLT |
| Period | ENG_64 | N/A | PE00G056.PLT |
| Period | ENG_COGE | N/A | PE00G057.PLT |
| Period | ENG_LKS | N/A | PE00G058.PLT |
| Period | ENG_MCCN | N/A | PE00G059.PLT |
| Period | ENG_STNL | N/A | PE00G060.PLT |
| Period | ESH_GEN | N/A | PE00G061.PLT |
| Period | GHSTK1 | N/A | PE00G062.PLT |
| Period | GHSTK10 | N/A | PE00G063.PLT |
| Period | GHSTK11 | N/A | PE00G064.PLT |
| Period | GHSTK12 | N/A | PE00G065.PLT |
| Period | GHSTK13 | N/A | PE00G066.PLT |
| Period | GHSTK2 | N/A | PE00G067.PLT |
| Period | GHSTK3 | N/A | PE00G068.PLT |
| Period | GHSTK4 | N/A | PE00G069.PLT |
| Period | GHSTK5 | N/A | PE00G070.PLT |
| Period | GHSTK6 | N/A | PE00G071.PLT |
| Period | GHSTK7 | N/A | PE00G072.PLT |
| Period | GHSTK8 | N/A | PE00G073.PLT |
| Period | GHSTK9 | N/A | PE00G074.PLT |
| Period | GOLDBEAR | N/A | PE00G075.PLT |
| Period | GPBBSTK | N/A | PE00G076.PLT |
| Period | HESSTK1 | N/A | PE00G077.PLT |
| Period | HHSTKA | N/A | PE00G078.PLT |
| Period | HHSTKB | N/A | PE00G079.PLT |
| Period | HHSTKC | N/A | PE00G080.PLT |
| Period | HHSTKD | N/A | PE00G081.PLT |
| Period | HHSTKE | N/A | PE00G082.PLT |
| Period | HILSTK1 | N/A | PE00G083.PLT |
| Period | HMMBSTK | N/A | PE00G084.PLT |
| Period | IGISTK | N/A | PE00G085.PLT |
| Period | IGI_GEN | N/A | PE00G086.PLT |
| Period | KHSTK1 | N/A | PE00G087.PLT |
| Period | KHSTK2 | N/A | PE00G088.PLT |
| Period | KHSTK3 | N/A | PE00G089.PLT |
| Period | KHSTK4 | N/A | PE00G090.PLT |
| Period | KROSTK | N/A | PE00G091.PLT |
| Period | LATHSTK1 | N/A | PE00G092.PLT |
| Period | LATHSTK2 | N/A | PE00G093.PLT |
| Period | LATHSTK3 | N/A | PE00G094.PLT |
| Period | LATHSTK4 | N/A | PE00G095.PLT |
| Period | LATHSTK5 | N/A | PE00G096.PLT |
| Period | LATHSTK6 | N/A | PE00G097.PLT |
| Period | LATHSTK7 | N/A | PE00G098.PLT |

| | | | |
|---|---|---|---|
| Period | LATHSTK8 | N/A | PE00G099.PLT |
| Period | LAWHOS | N/A | PE00G100.PLT |
| Period | LEWHSTK1 | N/A | PE00G101.PLT |
| Period | LEWHSTK2 | N/A | PE00G102.PLT |
| Period | LEWHSTK3 | N/A | PE00G103.PLT |
| Period | LEWHSTK4 | N/A | PE00G104.PLT |
| Period | LEWHSTK5 | N/A | PE00G105.PLT |
| Period | LEWHSTK6 | N/A | PE00G106.PLT |
| Period | LEWHSTK7 | N/A | PE00G107.PLT |
| Period | LEWHSTK8 | N/A | PE00G108.PLT |
| Period | LEWHSTK9 | N/A | PE00G109.PLT |
| Period | LKSSTK1 | N/A | PE00G110.PLT |
| Period | LKSSTK2 | N/A | PE00G111.PLT |
| Period | LKSSTK3 | N/A | PE00G112.PLT |
| Period | LSASTK1 | N/A | PE00G113.PLT |
| Period | LSASTK2 | N/A | PE00G114.PLT |
| Period | LSASTK3 | N/A | PE00G115.PLT |
| Period | LSASTK4 | N/A | PE00G116.PLT |
| Period | LSASTK5 | N/A | PE00G117.PLT |
| Period | LSASTK6 | N/A | PE00G118.PLT |
| Period | LSASTK7 | N/A | PE00G119.PLT |
| Period | MAXMC | N/A | PE00G120.PLT |
| Period | MEMSTAD | N/A | PE00G121.PLT |
| Period | MHSTK1 | N/A | PE00G122.PLT |
| Period | MHSTK2 | N/A | PE00G123.PLT |
| Period | MHSTK3 | N/A | PE00G124.PLT |
| Period | MHSTK4 | N/A | PE00G125.PLT |
| Period | MHSTK5 | N/A | PE00G126.PLT |
| Period | MHSTK6 | N/A | PE00G127.PLT |
| Period | MINORSTK | N/A | PE00G128.PLT |
| Period | MULSTK1 | N/A | PE00G129.PLT |
| Period | NWAF_1 | N/A | PE00G130.PLT |
| Period | NWAF_2 | N/A | PE00G131.PLT |
| Period | OXFTRACT | N/A | PE00G132.PLT |
| Period | POURING | N/A | PE00G133.PLT |
| Period | RES1ENG | N/A | PE00G134.PLT |
| Period | RES2ENG | N/A | PE00G135.PLT |
| Period | RES3ENG | N/A | PE00G136.PLT |
| Period | SDH1 | N/A | PE00G137.PLT |
| Period | SDH2 | N/A | PE00G138.PLT |
| Period | SDH3 | N/A | PE00G139.PLT |
| Period | SDH4 | N/A | PE00G140.PLT |
| Period | SSLSTK | N/A | PE00G141.PLT |
| Period | SSSADD | N/A | PE00G142.PLT |

| | | | |
|---|---|---|---|
| Period | STAN_1 | N/A | PE00G143.PLT |
| Period | STAN_10 | N/A | PE00G144.PLT |
| Period | STAN_2 | N/A | PE00G145.PLT |
| Period | STAN_3 | N/A | PE00G146.PLT |
| Period | STAN_4 | N/A | PE00G147.PLT |
| Period | STAN_5 | N/A | PE00G148.PLT |
| Period | STAN_6 | N/A | PE00G149.PLT |
| Period | STAN_7 | N/A | PE00G150.PLT |
| Period | STAN_8 | N/A | PE00G151.PLT |
| Period | STAN_9 | N/A | PE00G152.PLT |
| Period | TANHSTKA | N/A | PE00G153.PLT |
| Period | TANHSTKB | N/A | PE00G154.PLT |
| Period | TANHSTKC | N/A | PE00G155.PLT |
| Period | TANHSTKD | N/A | PE00G156.PLT |
| Period | UNDHLENG | N/A | PE00G157.PLT |
| Period | VLSBSTK1 | N/A | PE00G158.PLT |
| Period | VLSBSTK2 | N/A | PE00G159.PLT |
| Period | VLSBSTK3 | N/A | PE00G160.PLT |
| Period | VLSBSTK4 | N/A | PE00G161.PLT |
| Period | WAR_GEN | N/A | PE00G162.PLT |
| Period | WELSTK1 | N/A | PE00G163.PLT |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: 4THST**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 33.10821 | ug/m^3 | 561403.63 | 4191944.34 | 3.13 | 1.50 | 3.13 | |

**Concentration - Source Group: ARFSTK**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 595.16102 | ug/m^3 | 565733.43 | 4191698.34 | 112.20 | 1.50 | 584.28 | 8/24/2010, 19 |
| PERIOD | | 45.45797 | ug/m^3 | 565733.43 | 4191698.34 | 112.20 | 1.50 | 584.28 | |

**Concentration - Source Group: BAM_GEN**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 101.78884 | ug/m^3 | 564575.73 | 4191714.34 | 61.47 | 1.50 | 584.28 | |

**Concentration - Source Group: BARROWS**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 666.05293 | ug/m^3 | 565253.03 | 4191522.34 | 85.17 | 1.50 | 584.28 | 11/29/2013, 7 |
| PERIOD | | 45.19035 | ug/m^3 | 565350.13 | 4191536.44 | 86.98 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: BHSTK1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 412.28314 | ug/m^3 | 564608.43 | 4192116.84 | 71.35 | 1.50 | 584.28 | 10/17/2011, 10 |
| PERIOD | | 28.45398 | ug/m^3 | 564608.43 | 4192116.84 | 71.35 | 1.50 | 584.28 | |

**Concentration - Source Group: BHSTK2**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 335.33075 | ug/m^3 | 564652.73 | 4192120.74 | 73.75 | 1.50 | 584.28 | 10/13/2010, 9 |
| PERIOD | | 23.09248 | ug/m^3 | 564652.73 | 4192120.74 | 73.75 | 1.50 | 584.28 | |

**Concentration - Source Group: BHSTK3**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 307.46844 | ug/m^3 | 564564.03 | 4192112.94 | 68.90 | 1.50 | 584.28 | 4/19/2013, 8 |
| PERIOD | | 20.59854 | ug/m^3 | 564608.43 | 4192116.84 | 71.35 | 1.50 | 584.28 | |

**Concentration - Source Group: BHSTK4**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 334.80420 | ug/m^3 | 564586.23 | 4192114.94 | 70.16 | 1.50 | 584.28 | 10/26/2011, 10 |
| PERIOD | | 20.34762 | ug/m^3 | 564608.43 | 4192116.84 | 71.35 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: BHSTK5**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 359.86361 | ug/m^3 | 564603.63 | 4192144.34 | 71.86 | 1.50 | 584.28 | 5/1/2011, 8 |
| PERIOD | | 22.72015 | ug/m^3 | 564608.43 | 4192116.84 | 71.35 | 1.50 | 584.28 | |

**Concentration - Source Group: BOILER#2**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 38.17535 | ug/m^3 | 564811.33 | 4191452.54 | 70.55 | 1.50 | 584.28 | 2/19/2009, 20 |
| PERIOD | | 2.66928 | ug/m^3 | 565153.58 | 4191592.14 | 83.50 | 1.50 | 584.28 | |

**Concentration - Source Group: BOILER#3**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 29.38811 | ug/m^3 | 564831.63 | 4191456.14 | 71.40 | 1.50 | 584.28 | 2/6/2011, 4 |
| PERIOD | | 2.12486 | ug/m^3 | 565153.58 | 4191592.14 | 83.50 | 1.50 | 584.28 | |

**Concentration - Source Group: BOILER#4**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 25.61773 | ug/m^3 | 564580.23 | 4191617.64 | 62.16 | 1.50 | 584.28 | 12/10/2009, 15 |
| PERIOD | | 1.55694 | ug/m^3 | 565153.58 | 4191592.14 | 83.50 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: BWWEST**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 47.21295 | ug/m^3 | 564422.53 | 4191999.74 | 62.59 | 1.50 | 584.28 | |

**Concentration - Source Group: CARLETON**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 457.86930 | ug/m^3 | 564403.63 | 4190594.34 | 47.37 | 1.50 | 584.28 | |

**Concentration - Source Group: CH_BOW**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 189.22362 | ug/m^3 | 565403.63 | 4191344.34 | 83.09 | 1.50 | 584.28 | |

**Concentration - Source Group: CHOU_GEN**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 257.48103 | ug/m^3 | 565636.83 | 4191919.34 | 113.92 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: CHSTK1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 264.64943 | ug/m^3 | 565403.63 | 4192294.34 | 129.35 | 1.50 | 584.28 | 10/21/2011, 4 |
| PERIOD | | 30.90775 | ug/m^3 | 565394.23 | 4192196.64 | 120.26 | 1.50 | 584.28 | |

**Concentration - Source Group: CITENG**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 7.99285 | ug/m^3 | 565242.03 | 4192226.14 | 104.39 | 1.50 | 584.28 | |

**Concentration - Source Group: CKBOILER**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 464.21102 | ug/m^3 | 566103.63 | 4190894.34 | 107.82 | 1.50 | 584.28 | 10/25/2013, 1 |
| PERIOD | | 186.83084 | ug/m^3 | 566103.63 | 4190894.34 | 107.82 | 1.50 | 584.28 | |

**Concentration - Source Group: CLKERR**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 108.38474 | ug/m^3 | 566203.63 | 4190894.34 | 116.87 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: CMPBL_GE**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 26.74105 | ug/m^3 | 565539.83 | 4191992.24 | 112.68 | 1.50 | 584.28 | |

**Concentration - Source Group: CMPBLSTK**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 153.85121 | ug/m^3 | 565461.13 | 4192108.34 | 117.51 | 1.50 | 584.28 | 8/18/2013, 3 |
| PERIOD | | 12.27193 | ug/m^3 | 565516.23 | 4192023.14 | 113.94 | 1.50 | 584.28 | |

**Concentration - Source Group: COGEN**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 19.33032 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | 1/19/2010, 16 |
| PERIOD | | 1.44821 | ug/m^3 | 565040.33 | 4191492.34 | 78.40 | 1.50 | 584.28 | |

**Concentration - Source Group: DH_HORIZ**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 233.96239 | ug/m^3 | 565363.33 | 4192234.84 | 122.27 | 1.50 | 584.28 | 1/1/2012, 22 |
| PERIOD | | 9.38071 | ug/m^3 | 565394.23 | 4192196.64 | 120.26 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: DONSTK1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 1116.56191 | ug/m^3 | 565427.83 | 4192252.44 | 132.13 | 1.50 | 584.28 | 12/30/2011, 19 |
| PERIOD | | 94.25561 | ug/m^3 | 565419.93 | 4192167.54 | 118.69 | 1.50 | 584.28 | |

**Concentration - Source Group: E134_133**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 20.38012 | ug/m^3 | 565433.23 | 4192148.44 | 117.91 | 1.50 | 584.28 | |

**Concentration - Source Group: EBRCSA**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 432.06282 | ug/m^3 | 566303.63 | 4192644.34 | 339.70 | 1.50 | 584.28 | |

**Concentration - Source Group: EDTRACK**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 43.35053 | ug/m^3 | 564681.63 | 4191431.94 | 65.49 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: EHSTK**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 805.40465 | ug/m^3 | 565153.63 | 4192244.34 | 105.11 | 1.50 | 584.28 | 4/19/2009, 20 |
| PERIOD | | 127.05462 | ug/m^3 | 565153.63 | 4192294.34 | 106.89 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_105**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 14.22042 | ug/m^3 | 564963.33 | 4191476.64 | 76.06 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_106**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 3.34801 | ug/m^3 | 565153.58 | 4191592.14 | 83.50 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_107**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 85.79197 | ug/m^3 | 564697.03 | 4192124.54 | 76.51 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: ENG_108**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 5.51511 | ug/m^3 | 565153.58 | 4191592.14 | 83.50 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_109**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 41.65943 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_110**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 35.39351 | ug/m^3 | 564652.73 | 4192120.74 | 73.75 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_111**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 24.09762 | ug/m^3 | 565153.58 | 4191983.16 | 90.48 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: ENG_112**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 39.72598 | ug/m^3 | 565453.63 | 4191394.34 | 86.90 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_113**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 63.37931 | ug/m^3 | 565653.63 | 4191344.34 | 96.41 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_114**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 77.43595 | ug/m^3 | 565504.66 | 4191193.28 | 86.63 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_115**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 140.90458 | ug/m^3 | 565603.61 | 4191245.48 | 91.50 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: ENG_116**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 111.53594 | ug/m^3 | 564753.63 | 4191344.34 | 65.81 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_117**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 21.42017 | ug/m^3 | 565720.73 | 4191802.54 | 117.19 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_118**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 32.36725 | ug/m^3 | 564652.73 | 4192120.74 | 73.75 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_120**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 41.59582 | ug/m^3 | 565312.63 | 4191531.14 | 86.67 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: ENG_121**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 72.75007 | ug/m^3 | 565881.33 | 4191580.14 | 122.01 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_123**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 43.80525 | ug/m^3 | 565153.58 | 4191983.16 | 90.48 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_125**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 19.52578 | ug/m^3 | 564854.83 | 4191460.44 | 72.21 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_126**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 414.54356 | ug/m^3 | 565153.58 | 4191592.14 | 83.50 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: ENG_128**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 715.09620 | ug/m^3 | 565419.93 | 4192167.54 | 118.69 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_129**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 15.96074 | ug/m^3 | 565153.58 | 4191983.16 | 90.48 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_130**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 23.42320 | ug/m^3 | 565553.03 | 4191974.54 | 112.15 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_131**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 33.44826 | ug/m^3 | 564981.73 | 4191478.14 | 76.66 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: ENG_132**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 30.37362 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_62**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 28.50767 | ug/m^3 | 565500.31 | 4191294.41 | 80.90 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_63**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 24.44759 | ug/m^3 | 564652.73 | 4192120.74 | 73.75 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_64**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 14.41474 | ug/m^3 | 565583.93 | 4191955.44 | 111.30 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: ENG_COGE**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 15.39962 | ug/m^3 | 564926.53 | 4191473.84 | 74.13 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_LKS**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 14.53733 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_MCCN**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 17.17843 | ug/m^3 | 565153.58 | 4191983.16 | 90.48 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_STNL**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 28.04566 | ug/m^3 | 565473.13 | 4192090.84 | 116.78 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: ESH_GEN**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 89.27367 | ug/m^3 | 565082.73 | 4191498.44 | 79.90 | 1.50 | 584.28 | |

**Concentration - Source Group: GHSTK1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 347.31121 | ug/m^3 | 565506.03 | 4192036.34 | 115.02 | 1.50 | 584.28 | 1/8/2011, 16 |
| PERIOD | | 23.48050 | ug/m^3 | 565516.23 | 4192023.14 | 113.94 | 1.50 | 584.28 | |

**Concentration - Source Group: GHSTK10**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 401.73617 | ug/m^3 | 565548.03 | 4191988.34 | 113.28 | 1.50 | 584.28 | 2/14/2013, 19 |
| PERIOD | | 17.31394 | ug/m^3 | 565583.93 | 4191955.44 | 111.30 | 1.50 | 584.28 | |

**Concentration - Source Group: GHSTK11**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 446.49118 | ug/m^3 | 565535.53 | 4192005.44 | 113.97 | 1.50 | 584.28 | 5/27/2011, 4 |
| PERIOD | | 13.55301 | ug/m^3 | 565599.43 | 4191945.84 | 112.25 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: GHSTK12**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 435.96882 | ug/m^3 | 565535.53 | 4192005.44 | 113.97 | 1.50 | 584.28 | 5/27/2011, 4 |
| PERIOD | | 13.30893 | ug/m^3 | 565599.43 | 4191945.84 | 112.25 | 1.50 | 584.28 | |

**Concentration - Source Group: GHSTK13**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 366.76614 | ug/m^3 | 565548.03 | 4191988.34 | 113.28 | 1.50 | 584.28 | 6/22/2013, 3 |
| PERIOD | | 13.39308 | ug/m^3 | 565599.43 | 4191945.84 | 112.25 | 1.50 | 584.28 | |

**Concentration - Source Group: GHSTK2**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 417.62355 | ug/m^3 | 565548.03 | 4191988.34 | 113.28 | 1.50 | 584.28 | 8/25/2013, 3 |
| PERIOD | | 19.74113 | ug/m^3 | 565553.03 | 4191974.54 | 112.15 | 1.50 | 584.28 | |

**Concentration - Source Group: GHSTK3**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 379.24269 | ug/m^3 | 565568.73 | 4191974.54 | 113.63 | 1.50 | 584.28 | 3/17/2009, 1 |
| PERIOD | | 16.09480 | ug/m^3 | 565553.03 | 4191974.54 | 112.15 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: GHSTK4**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 400.87472 | ug/m^3 | 565568.73 | 4191974.54 | 113.63 | 1.50 | 584.28 | 3/17/2009, 1 |
| PERIOD | | 16.26226 | ug/m^3 | 565568.53 | 4191965.04 | 111.59 | 1.50 | 584.28 | |

**Concentration - Source Group: GHSTK5**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 411.69998 | ug/m^3 | 565548.03 | 4191988.34 | 113.28 | 1.50 | 584.28 | 2/14/2013, 19 |
| PERIOD | | 16.62519 | ug/m^3 | 565583.93 | 4191955.44 | 111.30 | 1.50 | 584.28 | |

**Concentration - Source Group: GHSTK6**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 348.19882 | ug/m^3 | 565506.03 | 4192036.34 | 115.02 | 1.50 | 584.28 | 1/8/2011, 16 |
| PERIOD | | 23.39335 | ug/m^3 | 565516.23 | 4192023.14 | 113.94 | 1.50 | 584.28 | |

**Concentration - Source Group: GHSTK7**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 292.90389 | ug/m^3 | 565506.03 | 4192036.34 | 115.02 | 1.50 | 584.28 | 1/8/2011, 16 |
| PERIOD | | 19.20815 | ug/m^3 | 565516.23 | 4192023.14 | 113.94 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: GHSTK8**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 370.78033 | ug/m^3 | 565548.03 | 4191988.34 | 113.28 | 1.50 | 584.28 | 8/25/2013, 3 |
| PERIOD | | 17.98376 | ug/m^3 | 565553.03 | 4191974.54 | 112.15 | 1.50 | 584.28 | |

**Concentration - Source Group: GHSTK9**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 374.84439 | ug/m^3 | 565553.03 | 4191974.54 | 112.15 | 1.50 | 584.28 | 2/5/2012, 18 |
| PERIOD | | 15.85422 | ug/m^3 | 565553.03 | 4191974.54 | 112.15 | 1.50 | 584.28 | |

**Concentration - Source Group: GOLDBEAR**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 142.47908 | ug/m^3 | 564153.63 | 4191894.34 | 57.20 | 1.50 | 584.28 | |

**Concentration - Source Group: GPBBSTK**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 395.07735 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | 9/26/2010, 21 |
| PERIOD | | 15.37049 | ug/m^3 | 564586.23 | 4192114.94 | 70.16 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: HESSTK1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 620.48537 | ug/m^3 | 565109.63 | 4192207.04 | 100.47 | 1.50 | 584.28 | 1/26/2012, 3 |
| PERIOD | | 7.80030 | ug/m^3 | 565409.63 | 4192177.54 | 118.75 | 1.50 | 584.28 | |

**Concentration - Source Group: HHSTKA**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 202.75108 | ug/m^3 | 565495.73 | 4192049.54 | 114.49 | 1.50 | 584.28 | 4/18/2011, 15 |
| PERIOD | | 16.55595 | ug/m^3 | 565553.03 | 4191974.54 | 112.15 | 1.50 | 584.28 | |

**Concentration - Source Group: HHSTKB**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 174.49884 | ug/m^3 | 565479.53 | 4192078.94 | 116.52 | 1.50 | 584.28 | 11/25/2012, 16 |
| PERIOD | | 29.60657 | ug/m^3 | 565553.03 | 4191974.54 | 112.15 | 1.50 | 584.28 | |

**Concentration - Source Group: HHSTKC**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 162.12752 | ug/m^3 | 565516.23 | 4192023.14 | 113.94 | 1.50 | 584.28 | 9/16/2010, 5 |
| PERIOD | | 16.17355 | ug/m^3 | 565599.43 | 4191945.84 | 112.25 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: HHSTKD**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 188.11224 | ug/m^3 | 565516.23 | 4192023.14 | 113.94 | 1.50 | 584.28 | 10/31/2012, 17 |
| PERIOD | | 9.07979 | ug/m^3 | 565553.03 | 4191974.54 | 112.15 | 1.50 | 584.28 | |

**Concentration - Source Group: HHSTKE**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 209.51384 | ug/m^3 | 565495.73 | 4192049.54 | 114.49 | 1.50 | 584.28 | 1/29/2011, 13 |
| PERIOD | | 16.38636 | ug/m^3 | 565553.03 | 4191974.54 | 112.15 | 1.50 | 584.28 | |

**Concentration - Source Group: HILSTK1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 368.08686 | ug/m^3 | 564743.43 | 4192142.14 | 80.35 | 1.50 | 584.28 | 1/15/2009, 17 |
| PERIOD | | 9.13994 | ug/m^3 | 564720.23 | 4192133.34 | 78.95 | 1.50 | 584.28 | |

**Concentration - Source Group: HMMBSTK**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 787.59219 | ug/m^3 | 565363.33 | 4192234.84 | 122.27 | 1.50 | 584.28 | 9/17/2010, 2 |
| PERIOD | | 21.29744 | ug/m^3 | 565409.63 | 4192177.54 | 118.75 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: IGI_GEN**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 3.91572 | ug/m^3 | 564471.93 | 4192005.64 | 63.68 | 1.50 | 584.28 | |

**Concentration - Source Group: IGISTK**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 243.16378 | ug/m^3 | 564471.93 | 4192005.64 | 63.68 | 1.50 | 584.28 | 1/16/2010, 13 |
| PERIOD | | 8.52437 | ug/m^3 | 564471.93 | 4192005.64 | 63.68 | 1.50 | 584.28 | |

**Concentration - Source Group: KHSTK1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 451.10660 | ug/m^3 | 564653.63 | 4192144.34 | 74.58 | 1.50 | 584.28 | 10/12/2010, 8 |
| PERIOD | | 11.49082 | ug/m^3 | 564652.73 | 4192120.74 | 73.75 | 1.50 | 584.28 | |

**Concentration - Source Group: KHSTK2**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 532.53758 | ug/m^3 | 564652.73 | 4192120.74 | 73.75 | 1.50 | 584.28 | 9/18/2010, 2 |
| PERIOD | | 24.28145 | ug/m^3 | 564652.73 | 4192120.74 | 73.75 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: KHSTK3**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 420.18095 | ug/m^3 | 564653.63 | 4192144.34 | 74.58 | 1.50 | 584.28 | 10/12/2010, 8 |
| PERIOD | | 11.55691 | ug/m^3 | 564564.03 | 4192112.94 | 68.90 | 1.50 | 584.28 | |

**Concentration - Source Group: KHSTK4**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 669.34011 | ug/m^3 | 564630.53 | 4192118.74 | 72.48 | 1.50 | 584.28 | 10/31/2012, 17 |
| PERIOD | | 33.38013 | ug/m^3 | 564652.73 | 4192120.74 | 73.75 | 1.50 | 584.28 | |

**Concentration - Source Group: KROSTK**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 550.75818 | ug/m^3 | 565554.13 | 4191569.84 | 96.97 | 1.50 | 584.28 | 2/14/2013, 18 |
| PERIOD | | 45.50381 | ug/m^3 | 565554.13 | 4191569.84 | 96.97 | 1.50 | 584.28 | |

**Concentration - Source Group: LATHSTK1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 152.33811 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | 10/27/2012, 10 |
| PERIOD | | 11.51637 | ug/m^3 | 565539.83 | 4191992.24 | 112.68 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: LATHSTK2**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 141.45978 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | 10/13/2010, 10 |
| PERIOD | | 14.61778 | ug/m^3 | 565539.83 | 4191992.24 | 112.68 | 1.50 | 584.28 | |

**Concentration - Source Group: LATHSTK3**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 237.57840 | ug/m^3 | 565506.03 | 4192036.34 | 115.02 | 1.50 | 584.28 | 6/23/2009, 9 |
| PERIOD | | 24.09980 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

**Concentration - Source Group: LATHSTK4**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 181.45699 | ug/m^3 | 565506.03 | 4192036.34 | 115.02 | 1.50 | 584.28 | 9/18/2009, 10 |
| PERIOD | | 18.88708 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

**Concentration - Source Group: LATHSTK5**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 158.81847 | ug/m^3 | 565506.03 | 4192036.34 | 115.02 | 1.50 | 584.28 | 9/18/2009, 10 |
| PERIOD | | 14.63637 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: LATHSTK6**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 188.36373 | ug/m^3 | 565516.23 | 4192023.14 | 113.94 | 1.50 | 584.28 | 11/4/2010, 11 |
| PERIOD | | 18.23169 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

**Concentration - Source Group: LATHSTK7**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 213.97620 | ug/m^3 | 565516.23 | 4192023.14 | 113.94 | 1.50 | 584.28 | 5/11/2012, 10 |
| PERIOD | | 19.99854 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

**Concentration - Source Group: LATHSTK8**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 131.78151 | ug/m^3 | 565523.13 | 4192022.54 | 114.60 | 1.50 | 584.28 | 5/11/2012, 10 |
| PERIOD | | 10.67066 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

**Concentration - Source Group: LAWHOS**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 81.47941 | ug/m^3 | 566303.63 | 4192644.34 | 339.70 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: LEWHSTK1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 853.13048 | ug/m^3 | 565523.13 | 4192022.54 | 114.60 | 1.50 | 584.28 | 6/22/2013, 2 |
| PERIOD | | 64.89776 | ug/m^3 | 565539.83 | 4191992.24 | 112.68 | 1.50 | 584.28 | |

**Concentration - Source Group: LEWHSTK2**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 1520.91222 | ug/m^3 | 565510.63 | 4192039.54 | 116.22 | 1.50 | 584.28 | 9/24/2013, 5 |
| PERIOD | | 65.57817 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

**Concentration - Source Group: LEWHSTK3**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 864.50097 | ug/m^3 | 565516.23 | 4192023.14 | 113.94 | 1.50 | 584.28 | 12/13/2009, 15 |
| PERIOD | | 56.85760 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

**Concentration - Source Group: LEWHSTK4**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 919.54810 | ug/m^3 | 565516.23 | 4192023.14 | 113.94 | 1.50 | 584.28 | 12/25/2009, 16 |
| PERIOD | | 57.35623 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: LEWHSTK5**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 967.16733 | ug/m^3 | 565498.13 | 4192056.64 | 115.60 | 1.50 | 584.28 | 5/6/2013, 2 |
| PERIOD | | 66.08160 | ug/m^3 | 565535.53 | 4192005.44 | 113.97 | 1.50 | 584.28 | |

**Concentration - Source Group: LEWHSTK6**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 797.65693 | ug/m^3 | 565523.13 | 4192022.54 | 114.60 | 1.50 | 584.28 | 10/15/2012, 4 |
| PERIOD | | 57.02733 | ug/m^3 | 565548.03 | 4191988.34 | 113.28 | 1.50 | 584.28 | |

**Concentration - Source Group: LEWHSTK7**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 926.38842 | ug/m^3 | 565498.13 | 4192056.64 | 115.60 | 1.50 | 584.28 | 7/30/2012, 6 |
| PERIOD | | 61.62780 | ug/m^3 | 565535.53 | 4192005.44 | 113.97 | 1.50 | 584.28 | |

**Concentration - Source Group: LEWHSTK8**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 937.15528 | ug/m^3 | 565516.23 | 4192023.14 | 113.94 | 1.50 | 584.28 | 3/6/2011, 17 |
| PERIOD | | 56.86860 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: LEWHSTK9**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 940.61280 | ug/m^3 | 565516.23 | 4192023.14 | 113.94 | 1.50 | 584.28 | 2/11/2011, 17 |
| PERIOD | | 56.60705 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

**Concentration - Source Group: LKSSTK1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 101.21665 | ug/m^3 | 564562.13 | 4191906.14 | 63.75 | 1.50 | 584.28 | 5/1/2011, 7 |
| PERIOD | | 5.93091 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

**Concentration - Source Group: LKSSTK2**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 96.54827 | ug/m^3 | 564562.13 | 4191906.14 | 63.75 | 1.50 | 584.28 | 5/1/2011, 7 |
| PERIOD | | 5.78362 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

**Concentration - Source Group: LKSSTK3**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 89.37238 | ug/m^3 | 564562.13 | 4191906.14 | 63.75 | 1.50 | 584.28 | 5/1/2011, 7 |
| PERIOD | | 5.62437 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: LSASTK1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 149.75672 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | 10/22/2010, 14 |
| PERIOD | | 4.91177 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

**Concentration - Source Group: LSASTK2**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 133.61925 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | 10/14/2009, 14 |
| PERIOD | | 4.66085 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

**Concentration - Source Group: LSASTK3**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 117.19989 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | 7/10/2012, 7 |
| PERIOD | | 3.40122 | ug/m^3 | 565153.58 | 4191592.14 | 83.50 | 1.50 | 584.28 | |

**Concentration - Source Group: LSASTK4**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 144.86804 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | 11/25/2012, 16 |
| PERIOD | | 3.26328 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: LSASTK5**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 125.46254 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | 7/10/2012, 7 |
| PERIOD | | 3.47294 | ug/m^3 | 565153.58 | 4191592.14 | 83.50 | 1.50 | 584.28 | |

**Concentration - Source Group: LSASTK6**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 149.07716 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | 11/25/2012, 16 |
| PERIOD | | 3.28417 | ug/m^3 | 565153.58 | 4191592.14 | 83.50 | 1.50 | 584.28 | |

**Concentration - Source Group: LSASTK7**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 182.48450 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | 11/25/2012, 16 |
| PERIOD | | 3.48339 | ug/m^3 | 565153.58 | 4191592.14 | 83.50 | 1.50 | 584.28 | |

**Concentration - Source Group: MAXMC**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 89.53942 | ug/m^3 | 565303.63 | 4191244.34 | 78.62 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: MEMSTAD**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 5.92791 | ug/m^3 | 565697.25 | 4192017.45 | 130.22 | 1.50 | 584.28 | |

**Concentration - Source Group: MHSTK1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 485.59758 | ug/m^3 | 564653.63 | 4192244.34 | 83.01 | 1.50 | 584.28 | 7/4/2013, 2 |
| PERIOD | | 19.43600 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

**Concentration - Source Group: MHSTK2**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 431.42531 | ug/m^3 | 564842.73 | 4192162.14 | 90.16 | 1.50 | 584.28 | 1/19/2009, 6 |
| PERIOD | | 15.39656 | ug/m^3 | 564697.03 | 4192124.54 | 76.51 | 1.50 | 584.28 | |

**Concentration - Source Group: MHSTK3**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 292.53710 | ug/m^3 | 564697.03 | 4192124.54 | 76.51 | 1.50 | 584.28 | 11/27/2012, 16 |
| PERIOD | | 12.90551 | ug/m^3 | 564697.03 | 4192124.54 | 76.51 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: MHSTK4**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 201.77828 | ug/m^3 | 564603.63 | 4192144.34 | 71.86 | 1.50 | 584.28 | 12/17/2011, 6 |
| PERIOD | | 10.55653 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

**Concentration - Source Group: MHSTK5**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 487.14593 | ug/m^3 | 564743.43 | 4192142.14 | 80.35 | 1.50 | 584.28 | 1/17/2013, 23 |
| PERIOD | | 33.36936 | ug/m^3 | 564697.03 | 4192124.54 | 76.51 | 1.50 | 584.28 | |

**Concentration - Source Group: MHSTK6**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 302.74537 | ug/m^3 | 564703.63 | 4192244.34 | 86.90 | 1.50 | 584.28 | 11/28/2011, 17 |
| PERIOD | | 12.55400 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

**Concentration - Source Group: MINORSTK**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 371.19906 | ug/m^3 | 565695.73 | 4191857.54 | 116.93 | 1.50 | 584.28 | 2/5/2012, 18 |
| PERIOD | | 24.51870 | ug/m^3 | 565721.43 | 4191784.14 | 115.86 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: MULSTK1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 308.62779 | ug/m^3 | 564652.73 | 4192120.74 | 73.75 | 1.50 | 584.28 | 6/24/2013, 22 |
| PERIOD | | 16.35644 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

**Concentration - Source Group: NWAF_1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 105.20176 | ug/m^3 | 564562.13 | 4191906.14 | 63.75 | 1.50 | 584.28 | 5/1/2011, 7 |
| PERIOD | | 6.72429 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

**Concentration - Source Group: NWAF_2**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 99.15448 | ug/m^3 | 564562.13 | 4191906.14 | 63.75 | 1.50 | 584.28 | 5/1/2011, 7 |
| PERIOD | | 6.68042 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

**Concentration - Source Group: OXFTRACT**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 3733.58945 | ug/m^3 | 564412.93 | 4192204.04 | 69.59 | 1.50 | 584.28 | 10/4/2013, 22 |
| PERIOD | | 318.16518 | ug/m^3 | 564508.43 | 4192205.24 | 71.03 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: POURING**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 456.42918 | ug/m^3 | 564831.63 | 4191456.14 | 71.40 | 1.50 | 584.28 | 9/28/2011, 22 |
| PERIOD | | 9.81086 | ug/m^3 | 564963.33 | 4191476.64 | 76.06 | 1.50 | 584.28 | |

**Concentration - Source Group: RES1ENG**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 611.25986 | ug/m^3 | 565453.63 | 4191444.34 | 87.45 | 1.50 | 584.28 | 9/13/2009, 9 |
| PERIOD | | 42.51709 | ug/m^3 | 565603.63 | 4191394.34 | 93.84 | 1.50 | 584.28 | |

**Concentration - Source Group: RES2ENG**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 617.62617 | ug/m^3 | 565503.63 | 4191244.34 | 86.17 | 1.50 | 584.28 | 12/13/2009, 2 |
| PERIOD | | 36.05311 | ug/m^3 | 565653.63 | 4191194.34 | 93.43 | 1.50 | 584.28 | |

**Concentration - Source Group: RES3ENG**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 702.48637 | ug/m^3 | 565053.40 | 4191343.34 | 76.03 | 1.50 | 584.28 | 1/6/2012, 15 |
| PERIOD | | 134.73172 | ug/m^3 | 565053.40 | 4191343.34 | 76.03 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: SDH1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 51.69225 | ug/m^3 | 565144.93 | 4192212.84 | 104.16 | 1.50 | 584.28 | 2/27/2009, 10 |
| PERIOD | | 5.09796 | ug/m^3 | 565419.93 | 4192164.34 | 118.11 | 1.50 | 584.28 | |

**Concentration - Source Group: SDH2**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 51.35909 | ug/m^3 | 565144.93 | 4192212.84 | 104.16 | 1.50 | 584.28 | 2/27/2009, 10 |
| PERIOD | | 5.32408 | ug/m^3 | 565419.93 | 4192164.34 | 118.11 | 1.50 | 584.28 | |

**Concentration - Source Group: SDH3**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 142.82898 | ug/m^3 | 565169.23 | 4192216.14 | 106.64 | 1.50 | 584.28 | 5/30/2010, 8 |
| PERIOD | | 7.76553 | ug/m^3 | 565409.63 | 4192177.54 | 118.75 | 1.50 | 584.28 | |

**Concentration - Source Group: SDH4**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 142.69480 | ug/m^3 | 565144.93 | 4192212.84 | 104.16 | 1.50 | 584.28 | 3/11/2009, 9 |
| PERIOD | | 7.86798 | ug/m^3 | 565409.63 | 4192177.54 | 118.75 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: SSLSTK**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 853.30372 | ug/m^3 | 566403.63 | 4192844.34 | 387.88 | 1.50 | 533.87 | 10/2/2012, 22 |
| PERIOD | | 92.69125 | ug/m^3 | 566453.63 | 4192794.34 | 392.13 | 1.50 | 533.87 | |

**Concentration - Source Group: SSSADD**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 60.12710 | ug/m^3 | 566503.63 | 4192844.34 | 396.53 | 1.50 | 533.87 | |

**Concentration - Source Group: STAN_1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 120.72122 | ug/m^3 | 565495.73 | 4192049.54 | 114.49 | 1.50 | 584.28 | 10/22/2011, 10 |
| PERIOD | | 28.70913 | ug/m^3 | 565471.43 | 4192093.54 | 116.88 | 1.50 | 584.28 | |

**Concentration - Source Group: STAN_10**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 110.11464 | ug/m^3 | 565495.73 | 4192049.54 | 114.49 | 1.50 | 584.28 | 10/22/2011, 10 |
| PERIOD | | 26.24354 | ug/m^3 | 565471.43 | 4192093.54 | 116.88 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: STAN_2**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 238.30002 | ug/m^3 | 565495.73 | 4192049.54 | 114.49 | 1.50 | 584.28 | 7/29/2011, 9 |
| PERIOD | | 52.25926 | ug/m^3 | 565471.43 | 4192093.54 | 116.88 | 1.50 | 584.28 | |

**Concentration - Source Group: STAN_3**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 259.62878 | ug/m^3 | 565440.53 | 4192137.84 | 117.41 | 1.50 | 584.28 | 6/21/2010, 8 |
| PERIOD | | 52.80307 | ug/m^3 | 565471.43 | 4192093.54 | 116.88 | 1.50 | 584.28 | |

**Concentration - Source Group: STAN_4**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 109.50285 | ug/m^3 | 565461.13 | 4192108.34 | 117.51 | 1.50 | 584.28 | 5/11/2012, 10 |
| PERIOD | | 29.32374 | ug/m^3 | 565471.43 | 4192093.54 | 116.88 | 1.50 | 584.28 | |

**Concentration - Source Group: STAN_5**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 117.41626 | ug/m^3 | 565446.53 | 4192129.24 | 117.06 | 1.50 | 584.28 | 10/17/2011, 10 |
| PERIOD | | 28.24845 | ug/m^3 | 565471.43 | 4192093.54 | 116.88 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: STAN_6**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 130.13242 | ug/m^3 | 565440.53 | 4192137.84 | 117.41 | 1.50 | 584.28 | 6/21/2010, 8 |
| PERIOD | | 26.77546 | ug/m^3 | 565471.43 | 4192093.54 | 116.88 | 1.50 | 584.28 | |

**Concentration - Source Group: STAN_7**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 130.12015 | ug/m^3 | 565440.53 | 4192137.84 | 117.41 | 1.50 | 584.28 | 6/21/2010, 8 |
| PERIOD | | 21.19251 | ug/m^3 | 565471.43 | 4192093.54 | 116.88 | 1.50 | 584.28 | |

**Concentration - Source Group: STAN_8**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 116.76398 | ug/m^3 | 565440.53 | 4192137.84 | 117.41 | 1.50 | 584.28 | 6/21/2010, 8 |
| PERIOD | | 23.33948 | ug/m^3 | 565471.43 | 4192093.54 | 116.88 | 1.50 | 584.28 | |

**Concentration - Source Group: STAN_9**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 105.14629 | ug/m^3 | 565471.43 | 4192093.54 | 116.88 | 1.50 | 584.28 | 4/21/2013, 10 |
| PERIOD | | 24.98712 | ug/m^3 | 565471.43 | 4192093.54 | 116.88 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: TANHSTKA**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 117.67150 | ug/m^3 | 565506.03 | 4192036.34 | 115.02 | 1.50 | 584.28 | 7/1/2011, 11 |
| PERIOD | | 9.61737 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

**Concentration - Source Group: TANHSTKB**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 122.39694 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | 10/13/2010, 10 |
| PERIOD | | 10.41068 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

**Concentration - Source Group: TANHSTKC**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 121.91843 | ug/m^3 | 565506.03 | 4192036.34 | 115.02 | 1.50 | 584.28 | 5/4/2011, 9 |
| PERIOD | | 9.68748 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

**Concentration - Source Group: TANHSTKD**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 129.19054 | ug/m^3 | 565506.03 | 4192036.34 | 115.02 | 1.50 | 584.28 | 9/18/2009, 10 |
| PERIOD | | 10.53638 | ug/m^3 | 565526.53 | 4192009.84 | 113.22 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: UNDHLENG**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 217.91150 | ug/m^3 | 565503.63 | 4191494.34 | 91.32 | 1.50 | 584.28 | 1/5/2009, 9 |
| PERIOD | | 16.46744 | ug/m^3 | 565551.42 | 4191445.56 | 91.89 | 1.50 | 584.28 | |

**Concentration - Source Group: VLSBSTK1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 219.91832 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | 9/28/2011, 9 |
| PERIOD | | 4.47385 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

**Concentration - Source Group: VLSBSTK2**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 219.18555 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | 11/12/2011, 8 |
| PERIOD | | 4.83443 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

**Concentration - Source Group: VLSBSTK3**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 76.33838 | ug/m^3 | 564902.23 | 4191469.34 | 73.37 | 1.50 | 584.28 | 9/19/2009, 7 |
| PERIOD | | 4.24030 | ug/m^3 | 565153.58 | 4191592.14 | 83.50 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - 2020 LRDP - Existing Sources
Health Risk Assessment

**Concentration - Source Group: VLSBSTK4**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 90.80965 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | 2/21/2012, 9 |
| PERIOD | | 3.28016 | ug/m^3 | 565153.58 | 4191592.14 | 83.50 | 1.50 | 584.28 | |

**Concentration - Source Group: WAR_GEN**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 203.57360 | ug/m^3 | 564516.83 | 4192133.14 | 67.72 | 1.50 | 584.28 | |

**Concentration - Source Group: WELSTK1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 934.84689 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | 10/14/2011, 21 |
| PERIOD | | 25.50354 | ug/m^3 | 564846.35 | 4191906.89 | 73.39 | 1.50 | 584.28 | |

# Control Pathway

AERMOD

## Dispersion Options

**Titles**

UC Berkeley - LRDP
Health Risk Assessment

**Dispersion Options**

- [x] Regulatory Default
- [ ] Non-Default Options

**Dispersion Coefficient**

Urban

Population:
Name (Optional):
Roughness Length:

**Output Type**

- [x] Concentration
- [ ] Total Deposition (Dry & Wet)
- [ ] Dry Deposition
- [ ] Wet Deposition

**Plume Depletion**

- [ ] Dry Removal
- [ ] Wet Removal

**Output Warnings**

- [ ] No Output Warnings
- [ ] Non-fatal Warnings for Non-sequential Met Data

## Pollutant / Averaging Time / Terrain Options

**Pollutant Type**

**Averaging Time Options**

Hours

| 1 | 2 | 3 | 4 | 6 | 8 | 12 | 24 |
|---|---|---|---|---|---|---|---|
| ■ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

- [ ] Month
- [x] Period
- [ ] Annual

**Exponential Decay**

Half Life of 4 hrs will be used
Optional to available

**Terrain Height Options**

- [ ] Flat
- [x] Elevated

SO: Meters
RE: Meters
TG: Meters

**Flagpole Receptors**

- [x] Yes
- [ ] No

Default Height = 1.50 m

# Source Pathway - Source Inputs

AERMOD

## Point Sources

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | MHSTK1 | 564704.90 | 4191991.90 | 76.51 | 7.61 | 1.00000 | 293.15 | 17.25 | 0.34 |
| POINT | MHSTK2 | 564704.99 | 4192037.87 | 76.97 | 10.89 | 1.00000 | 293.15 | 17.25 | 0.29 |
| POINT | MHSTK3 | 564701.22 | 4192038.06 | 76.69 | 10.89 | 1.00000 | 293.15 | 17.25 | 0.48 |
| POINT | MHSTK4 | 564706.82 | 4191984.32 | 76.53 | 15.61 | 1.00000 | 293.15 | 17.25 | 0.33 |
| POINT | MHSTK6 | 564707.56 | 4192007.88 | 77.10 | 10.94 | 1.00000 | 293.15 | 17.25 | 0.34 |
| POINT | KHSTK1 | 564659.64 | 4192062.80 | 75.24 | 18.45 | 1.00000 | 293.15 | 1.28 | 2.76 |
| POINT | KHSTK2 | 564656.79 | 4192091.38 | 73.65 | 18.45 | 1.00000 | 293.15 | 1.28 | 2.76 |
| POINT | KHSTK3 | 564648.95 | 4192062.02 | 75.30 | 18.45 | 1.00000 | 293.15 | 1.28 | 2.76 |
| POINT | KHSTK4 | 564647.58 | 4192090.84 | 73.27 | 18.45 | 1.00000 | 293.15 | 1.28 | 2.76 |
| POINT | BHSTK1 | 564593.79 | 4192079.05 | 71.38 | 27.85 | 1.00000 | 293.15 | 2.78 | 1.26 |
| POINT | BHSTK2 | 564589.36 | 4192088.03 | 70.41 | 29.68 | 1.00000 | 293.15 | 2.78 | 1.26 |
| POINT | BHSTK3 | 564610.01 | 4192089.03 | 71.63 | 29.68 | 1.00000 | 293.15 | 2.78 | 1.26 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | BHSTK4 | 564615.35 | 4192081.97 | 72.25 | 33.34 | 1.00000 | 293.15 | 2.78 | 0.37 |
| POINT | BHSTK5 | 564602.30 | 4192079.52 | 71.70 | 33.34 | 1.00000 | 293.15 | 2.78 | 0.37 |
| POINT | VLSBSTK1 | 564838.33 | 4191824.35 | 72.62 | 27.04 | 1.00000 | 293.15 | 3.97 | 1.22 |
| POINT | VLSBSTK2 | 564860.25 | 4191761.31 | 71.01 | 27.04 | 1.00000 | 293.15 | 3.97 | 1.22 |
| POINT | VLSBSTK3 | 564951.63 | 4191790.30 | 74.55 | 27.04 | 1.00000 | 293.15 | 3.97 | 1.22 |
| POINT | VLSBSTK4 | 564935.40 | 4191853.35 | 74.69 | 27.04 | 1.00000 | 293.15 | 3.97 | 1.22 |
| POINT | LSASTK1 | 564798.44 Weill Hall | 4191816.12 | 70.86 | 28.31 | 1.00000 | 293.15 | 5.18 | 1.22 |
| POINT | LSASTK2 | 564789.92 Weill Hall | 4191813.84 | 70.40 | 28.31 | 1.00000 | 293.15 | 5.18 | 1.22 |
| POINT | LSASTK3 | 564807.55 | 4191785.76 | 70.19 | 28.31 | 1.00000 | 293.15 | 5.18 | 1.22 |
| POINT | LSASTK4 | 564798.51 | 4191783.89 | 69.48 | 28.31 | 1.00000 | 293.15 | 5.18 | 1.22 |
| POINT | LSASTK5 | 564808.62 | 4191781.51 | 70.17 | 28.31 | 1.00000 | 293.15 | 5.18 | 1.22 |
| POINT | LSASTK6 | 564801.76 | 4191776.67 | 69.58 | 28.31 | 1.00000 | 293.15 | 5.18 | 1.22 |
| POINT | LSASTK7 | 564803.45 | 4191775.42 | 69.66 | 28.31 | 1.00000 | 293.15 | 5.18 | 0.30 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | LEWHSTK1 | 565506.23 | 4191982.72 | 107.13 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LEWHSTK2 | 565497.84 | 4191993.52 | 107.38 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LEWHSTK3 | 565494.35 | 4191997.91 | 107.45 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LEWHSTK4 | 565491.60 | 4192001.94 | 107.55 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LEWHSTK5 | 565503.87 | 4191993.68 | 108.05 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LEWHSTK6 | 565512.94 | 4191984.07 | 108.05 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LEWHSTK7 | 565507.64 | 4191990.52 | 108.12 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LEWHSTK8 | 565501.04 | 4192002.97 | 108.72 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.30 |
| POINT | LEWHSTK9 | 565495.92 | 4192005.66 | 108.42 | 12.80 | 1.00000 | 293.15 | 3.11 | 0.36 |
| POINT | LATHSTK1 | 565458.47 | 4192001.72 | 105.76 | 42.37 | 1.00000 | 293.15 | 6.28 | 0.34 |
| POINT | LATHSTK2 | 565463.05 | 4192012.69 | 106.35 | 36.88 | 1.00000 | 293.15 | 6.28 | 0.70 |
| POINT | LATHSTK3 | 565434.97 | 4192002.72 | 105.91 | 36.88 | 1.00000 | 293.15 | 6.28 | 0.48 |
| POINT | LATHSTK4 | 565418.47 | 4192001.97 | 106.10 | 37.19 | 1.00000 | 293.15 | 6.28 | 0.96 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | LATHSTK5 | 565443.10 | 4191996.72 | 105.52 | 42.37 | 1.00000 | 293.15 | 6.28 | 0.70 |
| POINT | LATHSTK6 | 565430.72 | 4191978.47 | 104.56 | 38.40 | 1.00000 | 293.15 | 6.28 | 0.74 |
| POINT | LATHSTK7 | 565448.35 | 4191983.97 | 104.78 | 38.40 | 1.00000 | 293.15 | 6.28 | 0.31 |
| POINT | LATHSTK8 | 565465.72 | 4191989.47 | 105.15 | 38.40 | 1.00000 | 293.15 | 6.28 | 0.70 |
| POINT | TANHSTKA | 565395.47 | 4191995.47 | 105.60 | 39.32 | 1.00000 | 293.15 | 2.94 | 1.69 |
| POINT | TANHSTKB | 565400.16 | 4191996.47 | 105.71 | 39.32 | 1.00000 | 293.15 | 2.94 | 1.69 |
| POINT | TANHSTKC | 565397.54 | 4191989.72 | 105.30 | 39.32 | 1.00000 | 293.15 | 2.94 | 1.69 |
| POINT | TANHSTKD | 565402.47 | 4191990.72 | 105.40 | 39.32 | 1.00000 | 293.15 | 2.94 | 1.69 |
| POINT | HHSTKA | 565442.83 | 4191954.10 | 103.08 | 20.12 | 1.00000 | 293.15 | 4.15 | 1.52 |
| POINT | HHSTKB | 565467.71 | 4191961.35 | 103.43 | 20.12 | 1.00000 | 293.15 | 4.15 | 1.52 |
| POINT | HHSTKC | 565478.89 | 4191922.35 | 101.45 | 20.12 | 1.00000 | 293.15 | 4.15 | 1.52 |
| POINT | HHSTKD | 565455.33 | 4191915.10 | 101.10 | 20.12 | 1.00000 | 293.15 | 4.15 | 1.52 |
| POINT | HHSTKE | 565445.52 | 4191951.10 | 102.90 | 20.12 | 1.00000 | 293.15 | 4.15 | 0.81 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | GHSTK1 | 565410.54 | 4191958.47 | 103.47 | 16.06 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK2 | 565413.97 | 4191947.22 | 102.78 | 16.06 | 1.00000 | 293.15 | 5.92 | 0.25 |
| POINT | GHSTK3 | 565415.85 | 4191941.47 | 102.41 | 16.37 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK4 | 565418.10 | 4191940.22 | 102.32 | 15.91 | 1.00000 | 293.15 | 5.92 | 0.31 |
| POINT | GHSTK5 | 565418.29 | 4191934.72 | 101.97 | 16.06 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK6 | 565403.66 | 4191957.72 | 103.43 | 16.12 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK7 | 565404.54 | 4191955.47 | 103.30 | 16.37 | 1.00000 | 293.15 | 5.92 | 0.84 |
| POINT | GHSTK8 | 565407.10 | 4191946.72 | 102.76 | 16.00 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK9 | 565408.66 | 4191942.72 | 102.50 | 16.37 | 1.00000 | 293.15 | 5.92 | 0.26 |
| POINT | GHSTK10 | 565410.35 | 4191937.72 | 102.16 | 16.06 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK11 | 565413.10 | 4191930.72 | 101.69 | 16.22 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK12 | 565412.41 | 4191927.97 | 101.51 | 16.06 | 1.00000 | 293.15 | 5.92 | 0.30 |
| POINT | GHSTK13 | 565420.35 | 4191928.22 | 101.56 | 15.91 | 1.00000 | 293.15 | 5.92 | 0.40 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | CHSTK1 | 565286.19<br>Cory Hall | 4192221.46 | 110.72 | 26.85 | 1.00000 | 293.15 | 2.00 | 1.00 |
| POINT | HESSTK1 | 565136.22<br>Hess, McCone, O'Brien | 4192113.95 | 97.89 | 15.39 | 1.00000 | 293.15 | 2.00 | 1.00 |
| POINT | HILSTK1 | 564780.81<br>Hilgard | 4192014.63 | 81.38 | 14.96 | 1.00000 | 293.15 | 2.00 | 1.00 |
| POINT | MULSTK1 | 564688.52<br>Mulford | 4191935.54 | 74.55 | 17.24 | 1.00000 | 293.15 | 2.00 | 1.00 |
| POINT | WELSTK1 | 564839.94<br>Wellman | 4191994.88 | 81.32 | 5.89 | 1.00000 | 293.15 | 2.00 | 1.00 |
| POINT | SDH1 | 565233.06<br>Sutardja Dai | 4192211.94 | 101.90 | 33.79 | 1.00000 | 293.15 | 12.66 | 1.63 |
| POINT | SDH2 | 565231.17 | 4192211.48 | 102.34 | 33.79 | 1.00000 | 293.15 | 12.66 | 1.63 |
| POINT | SDH3 | 565245.36 | 4192179.61 | 100.11 | 33.79 | 1.00000 | 293.15 | 13.62 | 0.86 |
| POINT | SDH4 | 565244.25 | 4192179.22 | 99.86 | 33.79 | 1.00000 | 293.15 | 13.62 | 0.86 |
| POINT | LKSSTK1 | 564620.37 | 4191983.26 | 70.15 | 33.50 | 1.00000 | 293.00 | 15.25 | 0.89 |
| POINT | LKSSTK2 | 564621.00 | 4191980.11 | 70.56 | 33.50 | 1.00000 | 293.00 | 15.25 | 0.89 |
| POINT | LKSSTK3 | 564621.42 | 4191976.54 | 71.01 | 33.50 | 1.00000 | 293.00 | 15.25 | 0.89 |
| POINT | NWAF_1 | 564612.19 | 4191982.63 | 69.18 | 33.50 | 1.00000 | 293.00 | 15.24 | 0.77 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | NWAF_2 | 564612.40 | 4191979.06 | 69.42 | 33.50 | 1.00000 | 293.00 | 15.24 | 0.77 |
| POINT | STAN_1 | 565430.65 | 4192108.07 | 113.42 | 35.36 | 1.00000 | 293.00 | 16.17 | 1.40 |
| POINT | STAN_2 | 565436.52 | 4192109.95 | 114.24 | 35.36 | 1.00000 | 293.15 | 16.17 | 0.30 |
| POINT | STAN_3 | 565432.02 | 4192103.73 | 113.25 | 35.36 | 1.00000 | 293.15 | 15.40 | 0.30 |
| POINT | STAN_4 | 565433.62 | 4192098.93 | 113.06 | 35.36 | 1.00000 | 293.15 | 15.40 | 1.40 |
| POINT | STAN_5 | 565435.32 | 4192094.23 | 112.95 | 35.36 | 1.00000 | 293.15 | 15.40 | 1.40 |
| POINT | STAN_6 | 565436.92 | 4192089.53 | 112.85 | 35.36 | 1.00000 | 293.15 | 15.40 | 1.40 |
| POINT | STAN_7 | 565443.52 | 4192091.33 | 113.84 | 35.36 | 1.00000 | 293.15 | 15.40 | 1.40 |
| POINT | STAN_8 | 565441.73 | 4192096.11 | 113.95 | 35.36 | 1.00000 | 293.15 | 15.40 | 1.40 |
| POINT | STAN_9 | 565440.12 | 4192100.93 | 114.07 | 35.36 | 1.00000 | 293.15 | 15.40 | 1.40 |
| POINT | STAN_10 | 565438.42 | 4192105.63 | 114.18 | 35.36 | 1.00000 | 293.15 | 15.40 | 1.40 |
| POINT | OXFTRACT | 564460.65<br>Oxford Tract | 4192229.19 | 71.00 | 4.57 | 1.00000 | 293.15 | 15.00 | 0.15 |
| POINT | IGISTK | 564475.40<br>Innovative Genomics Institute | 4192067.78 | 65.75 | 28.96 | 1.00000 | 293.15 | 15.00 | 0.30 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | COGEN | 564778.68<br>Turbine | 4191677.89 | 71.37 | 12.77 | 1.00000 | 430.37 | 10.45 | 2.28 |
| POINT | BOILER#2 | 564770.52 | 4191696.81 | 70.44 | 8.80 | 1.00000 | 522.82 | 7.97 | 1.52 |
| POINT | BOILER#3 | 564776.24 | 4191699.31 | 70.52 | 8.80 | 1.00000 | 554.11 | 10.53 | 1.52 |
| POINT | BOILER#4 | 564792.06 | 4191678.97 | 71.65 | 8.80 | 1.00000 | 566.65 | 12.63 | 1.52 |
| POINT | POURING | 564748.71<br>HazMat Facility | 4191665.20 | 70.11 | 14.94 | 1.00000 | 293.15 | 4.62 | 0.56 |
| POINT | ENG_62 | 565478.08 | 4191276.20 | 83.54 | 4.57 | 1.00000 | 800.37 | 146.01 | 0.13 |
| POINT | ENG_63 | 564576.96 | 4192088.53 | 69.54 | 4.57 | 1.00000 | 799.85 | 152.00 | 0.13 |
| POINT | ENG_64 | 565356.16 | 4191884.27 | 98.70 | 3.05 | 1.00000 | 817.07 | 58.47 | 0.08 |
| POINT | ENG_105 | 564852.17 | 4191637.00 | 73.19 | 4.57 | 1.00000 | 810.96 | 70.10 | 0.23 |
| POINT | ENG_106 | 564896.33 | 4191805.60 | 74.79 | 30.48 | 1.00000 | 810.96 | 70.10 | 0.20 |
| POINT | ENG_107 | 564673.63 | 4192106.38 | 74.76 | 0.00 | 1.00000 | 810.96 | 70.10 | 0.18 |
| POINT | ENG_108 | 564849.86 | 4191764.62 | 70.92 | 7.62 | 1.00000 | 810.96 | 70.10 | 0.18 |
| POINT | ENG_109 | 565414.89 | 4191972.13 | 104.29 | 3.05 | 1.00000 | 810.96 | 70.10 | 0.15 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | ENG_110 | 564558.20 | 4192072.16 | 68.68 | 4.57 | 1.00000 | 810.96 | 70.10 | 0.10 |
| POINT | ENG_111 | 564997.38 | 4191957.38 | 78.80 | 3.05 | 1.00000 | 810.96 | 70.10 | 0.11 |
| POINT | ENG_112 | 565449.06 | 4191407.88 | 86.83 | 3.05 | 1.00000 | 810.93 | 70.10 | 0.10 |
| POINT | ENG_113 | 565579.88 | 4191394.38 | 92.53 | 3.05 | 1.00000 | 810.93 | 70.10 | 0.10 |
| POINT | ENG_114 | 565488.97 | 4191213.11 | 84.67 | 3.05 | 1.00000 | 810.93 | 70.10 | 0.10 |
| POINT | ENG_115 | 565600.02 | 4191206.28 | 90.55 | 3.05 | 1.00000 | 810.93 | 70.10 | 0.10 |
| POINT | ENG_117 | 565482.19 | 4191808.63 | 100.80 | 3.05 | 1.00000 | 810.96 | 70.10 | 0.10 |
| POINT | ENG_118 | 564559.59 | 4192085.95 | 68.46 | 4.57 | 1.00000 | 810.96 | 70.10 | 0.13 |
| POINT | ENG_120 | 565209.70 | 4191622.48 | 86.25 | 3.05 | 1.00000 | 810.96 | 70.10 | 0.08 |
| POINT | ENG_121 | 565814.14 | 4191631.61 | 115.55 | 3.05 | 1.00000 | 810.93 | 70.10 | 0.08 |
| POINT | ENG_123 | 565195.54<br>Doe Mem Library | 4191860.22 | 92.21 | 0.33 | 1.00000 | 810.93 | 0.01 | 6.40 |
| POINT | ENG_125 | 564714.94 | 4191655.56 | 68.86 | 3.05 | 1.00000 | 810.96 | 70.10 | 0.08 |
| POINT | ENG_126 | 565044.56 | 4191637.76 | 77.75 | 0.00 | 1.00000 | 810.96 | 70.10 | 0.08 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | ENG_128 | 565408.14 | 4192166.71 | 116.66 | 3.05 | 1.00000 | 810.96 | 70.10 | 0.05 |
| POINT | ENG_129 | 565300.50 | 4191904.85 | 98.33 | 2.44 | 1.00000 | 810.96 | 70.10 | 0.05 |
| POINT | ENG_130 | 565443.20 | 4191921.65 | 101.31 | 2.44 | 1.00000 | 815.40 | 134.54 | 0.08 |
| POINT | ENG_131 | 564857.36 | 4191638.09 | 73.27 | 1.83 | 1.00000 | 817.07 | 58.47 | 0.08 |
| POINT | ENG_132 | 564706.38 | 4191977.72 | 76.33 | 1.83 | 1.00000 | 817.07 | 58.47 | 0.08 |
| POINT | E134_133 | 565285.79 | 4192154.02 | 104.48 | 3.05 | 1.00000 | 769.29 | 135.05 | 0.13 |
| POINT | ENG_STNL | 565435.33 | 4192121.20 | 114.95 | 31.39 | 1.00000 | 725.93 | 25.01 | 0.61 |
| POINT | ENG_116 | 564682.39<br>Tang | 4191368.85 | 64.35 | 4.60 | 1.00000 | 810.93 | 70.10 | 0.10 |
| POINT | UNDHLENG | 565575.23 | 4191361.07 | 90.67 | 10.67 | 1.00000 | 705.37 | 24.20 | 0.25 |
| POINT | RES2ENG | 565487.60 | 4191223.35 | 84.78 | 2.74 | 1.00000 | 807.59 | 56.20 | 0.15 |
| POINT | RES1ENG | 565464.89 | 4191427.59 | 89.15 | 2.74 | 1.00000 | 807.59 | 56.20 | 0.15 |
| POINT | RES3ENG | 565011.52 | 4191333.97 | 74.42 | 2.13 | 1.00000 | 810.93 | 59.08 | 0.13 |
| POINT | CITENG | 565205.04<br>Sutardaj Dai | 4192160.11 | 101.67 | 24.99 | 1.00000 | 679.54 | 164.20 | 0.20 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | ENG_LKS | 564621.42 | 4192030.18 | 71.33 | 1.27 | 1.00000 | 738.15 | 17.80 | 0.66 |
| POINT | WAR_GEN | 564472.93 | 4192140.68 | 67.28 | 13.72 | 1.00000 | 723.15 | 21.46 | 0.07 |
| POINT | ENG_MCCN | 565095.86 | 4192090.06 | 94.87 | 2.13 | 1.00000 | 810.93 | 59.08 | 0.13 |
| | | McCone | | | | | | | |
| POINT | SSSADD | 566508.52 | 4192825.10 | 394.33 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |
| | | Silver Space Sciences Addition | | | | | | | |
| POINT | 4THST | 561389.37 | 4191902.73 | 2.95 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |
| | | 4th St Campus Shared Services | | | | | | | |
| POINT | CH_BOW | 565360.68 | 4191361.86 | 81.27 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |
| | | Channing and Bowditch | | | | | | | |
| POINT | CARLETON | 564389.50 | 4190572.41 | 46.88 | 0.51 | 1.00000 | 1855.40 | 33.53 | 0.10 |
| | | 2000 Carleton | | | | | | | |
| POINT | GOLDBEAR | 564048.59 | 4191887.84 | 55.24 | 0.74 | 1.00000 | 811.00 | 70.10 | 0.10 |
| | | Golden Bear Center | | | | | | | |
| POINT | CLKERR | 566073.45 | 4190940.65 | 107.51 | 0.93 | 1.00000 | 1931.00 | 40.46 | 0.15 |
| | | Clark Kerr | | | | | | | |
| POINT | BARROWS | 565234.53 | 4191627.09 | 87.95 | 2.44 | 1.00000 | 768.71 | 29.48 | 0.08 |
| | | Barrows Hall | | | | | | | |
| POINT | IGI_GEN | 564474.43 | 4192072.84 | 65.88 | 32.92 | 1.00000 | 734.26 | 30.67 | 0.30 |
| | | IGI generator | | | | | | | |
| POINT | MAXMC | 565302.22 | 4191238.61 | 78.37 | 2.44 | 1.00000 | 853.15 | 57.27 | 0.10 |
| | | Maximino Martinez Commons | | | | | | | |
| POINT | LAWHOS | 566298.51 | 4192646.97 | 340.03 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |
| | | Lawrence Hall of Science | | | | | | | |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | MEMSTAD | 565717.82 | 4191956.04 | 121.16 | 3.66 | 1.00000 | 749.82 | 50.34 | 0.30 |
| | | Memorial Stadium | | | | | | | |
| POINT | CMPBLGEN | 565324.26 | 4191953.84 | 100.22 | 1.78 | 1.00000 | 853.15 | 70.70 | 0.09 |
| | | Campbell Hall | | | | | | | |
| POINT | ESH_GEN | 565022.82 | 4191501.56 | 76.67 | 7.62 | 1.00000 | 719.26 | 39.79 | 0.20 |
| | | Eshelman MLK | | | | | | | |
| POINT | BAM_GEN | 564508.55 | 4191771.46 | 61.66 | 3.23 | 1.00000 | 823.15 | 105.63 | 0.15 |
| | | Berkeley Art Museum | | | | | | | |
| POINT | CHOU_GEN | 565616.73 | 4191920.28 | 110.44 | 1.98 | 1.00000 | 703.71 | 66.40 | 0.10 |
| | | Chou Hall | | | | | | | |
| POINT | BWWEST | 564379.44 | 4191997.12 | 61.54 | 4.57 | 1.00000 | 804.26 | 96.28 | 0.15 |
| | | Berkeley Way West Gen | | | | | | | |
| POINT | ENGCOGEN | 564756.93 | 4191666.87 | 70.42 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |
| | | Co-Gen Plant Generator | | | | | | | |
| POINT | EDTRACK | 564608.66 | 4191472.50 | 63.26 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |
| | | Edwards Track portable gen | | | | | | | |
| POINT | EBRCSA | 566296.09 | 4192645.45 | 339.76 | 2.44 | 1.00000 | 797.59 | 81.46 | 0.06 |
| | | East Bay Reg. Comm. System Authority | | | | | | | |
| POINT | CKBOILER | 566083.88 | 4190896.85 | 106.95 | 7.62 | 1.00000 | 533.13 | 63.74 | 0.20 |
| | | Clark Kerr Boiler | | | | | | | |
| POINT | DONSTK1 | 565383.14 | 4192170.66 | 114.18 | 8.62 | 1.00000 | 293.15 | 3.97 | 1.00 |
| | | Donner Lab | | | | | | | |
| POINT | ARFSTK | 565628.14 | 4191685.24 | 103.78 | 8.00 | 1.00000 | 293.15 | 3.97 | 1.00 |
| | | 2251 College, Arch Research Facility | | | | | | | |
| POINT | CMPBLSTK | 565335.21 | 4191980.39 | 103.02 | 22.86 | 1.00000 | 293.15 | 3.97 | 1.00 |
| | | campbell hall | | | | | | | |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | EHSTK | 565147.46<br>etcheverry hall | 4192277.94 | 105.33 | 16.36 | 1.00000 | 293.15 | 2.00 | 1.00 |
| POINT | GPBBSTK | 564657.05<br>genetic & plant bio bldg | 4192024.55 | 75.04 | 10.06 | 1.00000 | 293.15 | 3.97 | 1.00 |
| POINT | MINORSTK | 565547.78<br>Minor Hall, Minor Add | 4191819.50 | 103.84 | 12.19 | 1.00000 | 293.15 | 3.97 | 1.00 |
| POINT | HMMBSTK | 565309.54<br>Hearst Mem Mining | 4192151.38 | 105.56 | 15.24 | 1.00000 | 293.15 | 3.97 | 1.00 |
| POINT | KROSTK | 565452.96<br>Kroeber | 4191654.75 | 95.33 | 12.19 | 1.00000 | 293.15 | 3.97 | 1.00 |
| POINT | SSLSTK | 566434.60<br>Silver Space Sciences Lab | 4192819.45 | 390.80 | 12.50 | 1.00000 | 293.15 | 3.97 | 1.00 |
| POINT | ENG_CP1 | 565480.54<br>Chemistry, Heathcock Hall | 4192044.83 | 111.35 | 3.05 | 1.00000 | 805.40 | 40.95 | 0.18 |
| POINT | ENG_164 | 565479.54<br>Woo Hon Fai Hall | 4191503.86 | 90.55 | 9.68 | 1.00000 | 805.40 | 40.95 | 0.18 |
| POINT | ENG_CE13 | 564504.17<br>Housing Project 1 | 4191995.82 | 64.90 | 54.86 | 1.00000 | 811.00 | 70.10 | 0.10 |
| POINT | ENG_CE14 | 565338.45<br>Housing Project 2 | 4191179.07 | 78.80 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |
| POINT | ENG_CP10 | 564735.02<br>Hearst-MacFarlane, former Tolman | 4192095.11 | 78.78 | 3.05 | 1.00000 | 805.40 | 40.95 | 0.18 |
| POINT | ENG_CE7 | 564602.74<br>Fulton-Bancroft | 4191368.82 | 61.27 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |
| POINT | CP1_STK | 565474.20<br>Chemistry, Heathcock Hall | 4192044.58 | 110.36 | 6.10 | 1.00000 | 293.15 | 3.97 | 1.00 |

# Source Pathway - Source Inputs

AERMOD

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Gas Exit Temp. [K] | Gas Exit Velocity [m/s] | Stack Inside Diameter [m] |
|---|---|---|---|---|---|---|---|---|---|
| POINT | WHF_1 | 565481.94<br>Woo Hon Fai Hall 1 | 4191526.72 | 92.11 | 14.10 | 1.00000 | 293.20 | 16.61 | 1.47 |
| POINT | WHF_2 | 565482.30<br>Woo Hon Fai Hall 2 | 4191523.58 | 91.93 | 14.10 | 1.00000 | 293.20 | 16.61 | 1.47 |
| POINT | WHF_3 | 565482.54<br>Woo Hon Fai Hall 3 | 4191521.16 | 91.79 | 14.10 | 1.00000 | 293.20 | 16.61 | 1.47 |
| POINT | ENG_P2 | 566529.86<br>future portable engine | 4192049.43 | 190.07 | 2.44 | 1.00000 | 811.00 | 70.10 | 0.10 |

## Volume Sources

| Source Type | Source ID | X Coordinate [m] | Y Coordinate [m] | Base Elevation (Optional) | Release Height [m] | Emission Rate [g/s] | Length of Side [m] | Building Height [m] | Initial Lateral Dim. [m] | Initial Vertical Dim. [m] |
|---|---|---|---|---|---|---|---|---|---|---|
| VOLUME | MHSTK5 | 564724.45 | 4192040.52 | 78.56 | 6.95 | 1.00000 | 0.30 | Surface-Based | 0.07 | 2.42 |
| VOLUME | DH_HORIZ | 565228.51<br>Davis Hall | 4192163.46 | 101.25 | 22.86 | 1.00000 | 1.88 | Surface-Based | 0.44 | 0.87 |

# Output Pathway



## Tabular Printed Outputs

| Short Term Averaging Period | RECTABLE Highest Values Table | | | | | | | | | | MAXTABLE Maximum Values Table | DAYTABLE Daily Values Table |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th | 10th | | |
| 1 | ■ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | | No |

## Contour Plot Files (PLOTFILE)

**Path for PLOTFILES:** UCB01_LRDP.AD

| Averaging Period | Source Group ID | High Value | File Name |
|---|---|---|---|
| 1 | CP1_STK | 1st | 01H1G024.PLT |
| 1 | WHF_1 | 1st | 01H1G172.PLT |
| 1 | WHF_2 | 1st | 01H1G173.PLT |
| 1 | WHF_3 | 1st | 01H1G174.PLT |
| Period | CP1_STK | N/A | PE00G024.PLT |
| Period | ENG_164 | N/A | PE00G056.PLT |
| Period | ENG_CE13 | N/A | PE00G060.PLT |
| Period | ENG_CE14 | N/A | PE00G061.PLT |
| Period | ENG_CE7 | N/A | PE00G062.PLT |
| Period | ENG_CP1 | N/A | PE00G063.PLT |
| Period | ENG_CP10 | N/A | PE00G064.PLT |
| Period | ENG_P2 | N/A | PE00G067.PLT |
| Period | WHF_1 | N/A | PE00G172.PLT |
| Period | WHF_2 | N/A | PE00G173.PLT |
| Period | WHF_3 | N/A | PE00G174.PLT |

# Results Summary

UC Berkeley - LRDP
Health Risk Assessment

**Concentration - Source Group: CP1_STK**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 169.83944 | ug/m^3 | 565495.73 | 4192049.54 | 114.49 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_164**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 36.36409 | ug/m^3 | 565453.63 | 4191494.34 | 88.45 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_CE13**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 10.97819 | ug/m^3 | 564562.13 | 4191906.14 | 63.75 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_CE14**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 71.11251 | ug/m^3 | 565403.63 | 4191194.34 | 81.90 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - LRDP
Health Risk Assessment

**Concentration - Source Group: ENG_CE7**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 74.16623 | ug/m^3 | 564653.63 | 4191344.34 | 62.47 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_CP1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 242.85699 | ug/m^3 | 565495.73 | 4192049.54 | 114.49 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_CP10**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 19.94556 | ug/m^3 | 564720.23 | 4192133.34 | 78.95 | 1.50 | 584.28 | |

**Concentration - Source Group: ENG_P2**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| PERIOD | | 35.81872 | ug/m^3 | 566608.83 | 4192045.34 | 210.90 | 1.50 | 584.28 | |

# Results Summary

UC Berkeley - LRDP
Health Risk Assessment

**Concentration - Source Group: WHF_1**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 170.88758 | ug/m^3 | 565403.63 | 4191544.34 | 89.23 | 1.50 | 584.28 | 12/22/2011, 21 |
| PERIOD | | 6.41947 | ug/m^3 | 565653.63 | 4191494.34 | 99.60 | 1.50 | 584.28 | |

**Concentration - Source Group: WHF_2**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 132.53730 | ug/m^3 | 565542.72 | 4191395.54 | 90.48 | 1.50 | 584.28 | 9/28/2011, 22 |
| PERIOD | | 8.34617 | ug/m^3 | 565603.63 | 4191394.34 | 93.84 | 1.50 | 584.28 | |

**Concentration - Source Group: WHF_3**

| Averaging Period | Rank | Peak | Units | X (m) | Y (m) | ZELEV (m) | ZFLAG (m) | ZHILL (m) | Peak Date, Start Hour |
|---|---|---|---|---|---|---|---|---|---|
| 1-HR | 1ST | 130.89653 | ug/m^3 | 565542.72 | 4191395.54 | 90.48 | 1.50 | 584.28 | 9/28/2011, 22 |
| PERIOD | | 8.63490 | ug/m^3 | 565603.63 | 4191394.34 | 93.84 | 1.50 | 584.28 | |

# Appendix HRA_C. HARP2, Risk Calculations

HARP2 - HRACalc (dated 19044) 12/7/2020 8:37:07 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
**********
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: All
Calculation Method: Derived

**********
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 30

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 14
16<30 Years Bin: 14
16 to 70 Years Bin: 0

**********
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********
INHALATION

```
Daily breathing rate: LongTerm24HR

**Worker Adjustment Factors**
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: ON

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS
Tier2 not used.

**********************************

Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to:
C:\!AERMOD\UCB01\UCB_ex_ADRT\UCB_EXIST\hra\ExistCancerRisk.csv
Cancer risk total by receptor saved to:
C:\!AERMOD\UCB01\UCB_ex_ADRT\UCB_EXIST\hra\ExistCancerRiskSumByRec.csv
Calculating chronic risk
Chronic risk breakdown by pollutant and receptor saved to:
C:\!AERMOD\UCB01\UCB_ex_ADRT\UCB_EXIST\hra\ExistNCChronicRisk.csv
Chronic risk total by receptor saved to:
C:\!AERMOD\UCB01\UCB_ex_ADRT\UCB_EXIST\hra\ExistNCChronicRiskSumByRec.csv
Calculating acute risk
Acute risk breakdown by pollutant and receptor saved to:
C:\!AERMOD\UCB01\UCB_ex_ADRT\UCB_EXIST\hra\ExistNCAcuteRisk.csv
Acute risk total by receptor saved to:
C:\!AERMOD\UCB01\UCB_ex_ADRT\UCB_EXIST\hra\ExistNCAcuteRiskSumByRec.csv
HRA ran successfully
```

*HARP - HRACalc v19044 12/7/2020 8:37:07 AM - Cancer Risk - Input File: C:\!AERMOD\UCB01\UCB_ex_ADRT\UCB_EXIST\hra\ExistHRAInput.hra

| REC | GRP | NETID | X | Y | RISK_SUM | SCENARIO | INH_RISK | SOIL_RISK | DERMAL_R | MMILK_RIS | WATER_RIS | FISH_RISK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | CARTGRID | | 564516.8 | 4192133 | 2.44E-05 | 30YrCancer | 2.44E-05 | 3.36E-08 | 1.46E-09 | 1.47E-09 | 0.00E+00 | 0.00E+00 |
| 1683 | CARTGRID | | 564653.6 | 4192144 | 7.18E-06 | 30YrCancer | 7.14E-06 | 3.28E-08 | 1.42E-09 | 1.43E-09 | 0.00E+00 | 0.00E+00 |

*HARP - HRACalc v19044 12/7/2020 8:37:07 AM - Chronic Risk - Input File: C:\!AERMOD\UCB01\UCB_ex_ADRT\UCB_EXIST\hra\ExistHRAInput.hra

| REC | GRP | NETID | X | Y | SCENARIO | CV | CNS | IMMUN | KIDNEY | GILV | REPRO/DE' | RESP | SKIN | EYE | BONE/TEE' | ENDO | BLOOD | ODOR | GENERAL | MAXHI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | CARTGRID | | 564516.8 | 4192133 | NonCancer | 1.60E-03 | 3.14E-03 | 3.61E-05 | 1.62E-03 | 7.27E-05 | 3.09E-03 | 1.65E-02 | 1.59E-03 | 5.56E-06 | 1.33E-04 | 1.93E-05 | 3.51E-04 | 0.00E+00 | 0.00E+00 | 1.65E-02 |
| 1199 | CARTGRID | | 565153.6 | 4191494 | NonCancer | 1.05E-02 | 2.04E-02 | 2.35E-04 | 1.03E-02 | 1.30E-04 | 1.99E-02 | 4.32E-02 | 1.04E-02 | 1.16E-05 | 1.91E-04 | 1.18E-05 | 2.05E-03 | 0.00E+00 | 0.00E+00 | 4.32E-02 |
| 1683 | CARTGRID | | 564653.6 | 4192144 | NonCancer | 1.57E-03 | 3.07E-03 | 3.52E-05 | 1.60E-03 | 1.18E-04 | 3.06E-03 | 1.61E-02 | 1.55E-03 | 8.78E-06 | 2.13E-04 | 3.61E-05 | 3.66E-04 | 0.00E+00 | 0.00E+00 | 1.61E-02 |
| 1728 | CARTGRID | | 564853.6 | 4192194 | NonCancer | 1.13E-03 | 2.19E-03 | 2.48E-05 | 1.12E-03 | 6.49E-05 | 2.17E-03 | 9.07E-03 | 1.12E-03 | 5.98E-06 | 2.71E-04 | 1.75E-05 | 2.82E-04 | 0.00E+00 | 0.00E+00 | 9.07E-03 |

*HARP - HRACalc v19044 12/7/2020 8:37:07 AM - Acute Risk - Input File: C:\!AERMOD\UCB01\UCB_ex_ADRT\UCB_EXIST\hra\ExistHRAInput.hra

| REC | GRP | NETID | X | Y | SCENARIO | CV | CNS | IMMUN | KIDNEY | GILV | REPRO/DE' | RESP | SKIN | EYE | BONE/TEE' | ENDO | BLOOD | ODOR | GENERAL | MAXHI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | CARTGRID | | 564516.8 | 4192133 | NonCancer | 5.11E-04 | 1.92E-02 | 6.95E-03 | 0.00E+00 | 2.20E-04 | 2.11E-02 | 2.32E-02 | 0.00E+00 | 6.18E-02 | 0.00E+00 | 0.00E+00 | 2.82E-03 | 0.00E+00 | 0.00E+00 | 6.18E-02 |
| 1199 | CARTGRID | | 565153.6 | 4191494 | NonCancer | 9.60E-04 | 2.12E-02 | 1.24E-02 | 0.00E+00 | 3.07E-04 | 2.46E-02 | 2.56E-02 | 0.00E+00 | 8.06E-02 | 0.00E+00 | 0.00E+00 | 4.31E-03 | 0.00E+00 | 0.00E+00 | 8.06E-02 |
| 1683 | CARTGRID | | 564653.6 | 4192144 | NonCancer | 5.87E-04 | 2.54E-02 | 8.33E-03 | 0.00E+00 | 2.67E-04 | 2.78E-02 | 3.10E-02 | 0.00E+00 | 8.14E-02 | 0.00E+00 | 0.00E+00 | 3.63E-03 | 0.00E+00 | 0.00E+00 | 8.14E-02 |
| 1728 | CARTGRID | | 564853.6 | 4192194 | NonCancer | 6.15E-04 | 2.03E-02 | 9.39E-03 | 0.00E+00 | 1.48E-04 | 2.36E-02 | 2.48E-02 | 0.00E+00 | 6.73E-02 | 0.00E+00 | 0.00E+00 | 4.28E-03 | 0.00E+00 | 0.00E+00 | 6.73E-02 |

HARP2 - HRACalc (dated 19044) 12/7/2020 9:34:30 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
**********
RISK SCENARIO SETTINGS

Receptor Type: Worker
Scenario: Cancer
Calculation Method: Derived

**********
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 16
Total Exposure Duration: 25

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 25

**********
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********
INHALATION

```
Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS
Tier2 not used.

**********************************

Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to:
C:\!AERMOD\UCB01\UCB_ex_ADRT\UCB_EXIST\hra\Exist_WorkerCancerRisk.csv
Cancer risk total by receptor saved to:
C:\!AERMOD\UCB01\UCB_ex_ADRT\UCB_EXIST\hra\Exist_WorkerCancerRiskSumByRec.csv
HRA ran successfully
```

*HARP - HRACalc v19044 12/7/2020 9:34:30 AM - Cancer Risk - Input File: C:\!AERMOD\UCB01\UCB_ex_ADRT\UCB_EXIST\hra\Exist_WorkerHRAInpu

| REC | GRP | NETID | X | Y | RISK_SUM | SCENARIO | INH_RISK | SOIL_RISK | DERMAL_R | MMILK_RIS | WATER_RIS | FISH_RISK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1199 | CARTGRID | | 565153.6 | 4191494 | 6.31E-07 | 25YrCancer | 6.18E-07 | 9.28E-09 | 3.90E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

HARP2 - HRACalc (dated 19044) 12/9/2020 8:24:21 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
**********
RISK SCENARIO SETTINGS

Receptor Type: Worker
Scenario: Cancer
Calculation Method: Derived

**********
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 3
Total Exposure Duration: 12

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 12
16<30 Years Bin: 0
16 to 70 Years Bin: 0

**********
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Tier2 - What was changed: BAY AREA HEALTH TABLE USED|ED or start age changed|
Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to:
C:\!AERMOD\UCB01\UCB_ex_ADRT\UCB_EXIST\hra\Exist_MFSCancerRisk.csv
Cancer risk total by receptor saved to:
C:\!AERMOD\UCB01\UCB_ex_ADRT\UCB_EXIST\hra\Exist_MFSCancerRiskSumByRec.csv
HRA ran successfully

*HARP - HRACalc v19044 12/9/2020 8:24:21 AM - Cancer Risk - Input File: C:\!AERMOD\UCB01\UCB_ex_ADRT\UCB_EXIST\hra\Exist_MFSHRAInput.h

| REC | GRP | NETID | X | Y | RISK_SUM | SCENARIO | INH_RISK | SOIL_RISK | DERMAL_R | MMILK_RIS | WATER_RIS | FISH_RISK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1728 | CARTGRID | | 564853.6 | 4192194 | 8.73E-07 | 12YrCancer | 8.67E-07 | 4.76E-09 | 5.92E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

HARP2 - HRACalc (dated 19044) 12/15/2020 8:02:01 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
**********
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: All
Calculation Method: Derived

**********
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 30

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 14
16<30 Years Bin: 14
16 to 70 Years Bin: 0

**********
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********
INHALATION

```
Daily breathing rate: LongTerm24HR

**Worker Adjustment Factors**
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: ON

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS
Tier2 not used.

**********************************

Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to:
C:\!AERMOD\UCB01_LRDP\UCB_LRDP\hra\LRDPCancerRisk.csv
Cancer risk total by receptor saved to:
C:\!AERMOD\UCB01_LRDP\UCB_LRDP\hra\LRDPCancerRiskSumByRec.csv
Calculating chronic risk
Chronic risk breakdown by pollutant and receptor saved to:
C:\!AERMOD\UCB01_LRDP\UCB_LRDP\hra\LRDPNCChronicRisk.csv
Chronic risk total by receptor saved to:
C:\!AERMOD\UCB01_LRDP\UCB_LRDP\hra\LRDPNCChronicRiskSumByRec.csv
Calculating acute risk
Acute risk breakdown by pollutant and receptor saved to:
C:\!AERMOD\UCB01_LRDP\UCB_LRDP\hra\LRDPNCAcuteRisk.csv
Acute risk total by receptor saved to:
C:\!AERMOD\UCB01_LRDP\UCB_LRDP\hra\LRDPNCAcuteRiskSumByRec.csv
HRA ran successfully
```

*HARP - HRACalc v19044 12/15/2020 8:02:01 AM - Cancer Risk - Input File: C:\!AERMOD\UCB01_LRDP\UCB_LRDP\hra\LRDPHRAInput.hra

| REC | GRP | NETID | X | Y | RISK_SUM | SCENARIO | INH_RISK | SOIL_RISK | DERMAL_R | MMILK_RIS | WATER_RIS | FISH_RISK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | CARTGRID | | 564516.8 | 4192133 | 2.45E-05 | 30YrCancer | 2.44E-05 | 4.95E-08 | 2.11E-09 | 1.53E-09 | 0.00E+00 | 0.00E+00 |
| 1683 | CARTGRID | | 564653.6 | 4192144 | 7.31E-06 | 30YrCancer | 7.26E-06 | 4.82E-08 | 2.06E-09 | 1.49E-09 | 0.00E+00 | 0.00E+00 |

*HARP - HRACalc v19044 12/15/2020 8:02:01 AM - Chronic Risk - Input File: C:\!AERMOD\UCB01_LRDP\UCB_LRDP\hra\LRDPHRAInput.hra

| REC | GRP | NETID | X | Y | SCENARIO | CV | CNS | IMMUN | KIDNEY | GILV | REPRO/DE' | RESP | SKIN | EYE | BONE/TEE' | ENDO | BLOOD | ODOR | GENERAL | MAXHI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | CARTGRID | | 564516.8 | 4192133 | NonCancer | 2.66E-03 | 4.23E-03 | 3.67E-05 | 1.73E-03 | 7.98E-05 | 4.18E-03 | 1.80E-02 | 2.63E-03 | 7.64E-06 | 1.74E-04 | 2.09E-05 | 4.98E-04 | 0.00E+00 | 0.00E+00 | 1.80E-02 |
| 1199 | CARTGRID | | 565153.6 | 4191494 | NonCancer | 1.73E-02 | 2.75E-02 | 2.39E-04 | 1.11E-02 | 1.46E-04 | 2.69E-02 | 5.18E-02 | 1.72E-02 | 1.63E-05 | 2.51E-04 | 1.73E-05 | 2.85E-03 | 0.00E+00 | 0.00E+00 | 5.18E-02 |
| 1683 | CARTGRID | | 564653.6 | 4192144 | NonCancer | 2.60E-03 | 4.14E-03 | 3.58E-05 | 1.71E-03 | 1.29E-04 | 4.12E-03 | 1.80E-02 | 2.56E-03 | 1.17E-05 | 2.59E-04 | 3.61E-05 | 5.20E-04 | 0.00E+00 | 0.00E+00 | 1.80E-02 |
| 1728 | CARTGRID | | 564853.6 | 4192194 | NonCancer | 1.90E-03 | 2.98E-03 | 2.52E-05 | 1.21E-03 | 8.66E-05 | 2.95E-03 | 1.07E-02 | 1.85E-03 | 1.03E-05 | 3.76E-04 | 2.21E-05 | 4.34E-04 | 0.00E+00 | 0.00E+00 | 1.07E-02 |

*HARP - HRACalc v19044 12/15/2020 8:02:01 AM - Acute Risk - Input File: C:\!AERMOD\UCB01_LRDP\UCB_LRDP\hra\LRDPHRAInput.hra

| REC | GRP | NETID | X | Y | SCENARIO | CV | CNS | IMMUN | KIDNEY | GILV | REPRO/DE' | RESP | SKIN | EYE | BONE/TEE' | ENDO | BLOOD | ODOR | GENERAL | MAXHI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | CARTGRID | | 564516.8 | 4192133 | NonCancer | 6.58E-04 | 2.21E-02 | 9.05E-03 | 0.00E+00 | 6.60E-05 | 2.57E-02 | 2.64E-02 | 0.00E+00 | 6.35E-02 | 0.00E+00 | 0.00E+00 | 4.93E-03 | 0.00E+00 | 0.00E+00 | 6.35E-02 |
| 1199 | CARTGRID | | 565153.6 | 4191494 | NonCancer | 1.19E-03 | 2.70E-02 | 1.57E-02 | 0.00E+00 | 8.91E-05 | 3.30E-02 | 3.21E-02 | 0.00E+00 | 8.54E-02 | 0.00E+00 | 0.00E+00 | 7.60E-03 | 0.00E+00 | 0.00E+00 | 8.54E-02 |
| 1683 | CARTGRID | | 564653.6 | 4192144 | NonCancer | 7.78E-04 | 2.99E-02 | 1.09E-02 | 0.00E+00 | 1.07E-04 | 3.44E-02 | 3.59E-02 | 0.00E+00 | 8.45E-02 | 0.00E+00 | 0.00E+00 | 6.18E-03 | 0.00E+00 | 0.00E+00 | 8.45E-02 |
| 1728 | CARTGRID | | 564853.6 | 4192194 | NonCancer | 9.33E-04 | 3.01E-02 | 1.28E-02 | 0.00E+00 | 7.47E-05 | 3.61E-02 | 3.49E-02 | 0.00E+00 | 7.18E-02 | 0.00E+00 | 0.00E+00 | 7.72E-03 | 0.00E+00 | 0.00E+00 | 7.18E-02 |

HARP2 - HRACalc (dated 19044) 12/14/2020 6:41:57 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
**********
RISK SCENARIO SETTINGS

Receptor Type: Worker
Scenario: Cancer
Calculation Method: Derived

**********
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 16
Total Exposure Duration: 25

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 25

**********
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********
INHALATION

```
Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********************************
TIER 2 SETTINGS
Tier2 not used.

**********************************

Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to:
C:\!AERMOD\UCB01_LRDP\UCB_LRDP\hra\LRDP_WorkerCancerRisk.csv
Cancer risk total by receptor saved to:
C:\!AERMOD\UCB01_LRDP\UCB_LRDP\hra\LRDP_WorkerCancerRiskSumByRec.csv
HRA ran successfully
```

*HARP - HRACalc v19044 12/14/2020 6:41:57 AM - Cancer Risk - Input File: C:\!AERMOD\UCB01_LRDP\UCB_LRDP\hra\LRDP_WorkerHRAInput.hra

| REC | GRP | NETID | X | Y | RISK_SUM | SCENARIO | INH_RISK | SOIL_RISK | DERMAL_R | MMILK_RIS | WATER_RIS | FISH_RISK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1199 | CARTGRID | | 565153.6 | 4191494 | 6.57E-07 | 25YrCancer | 6.37E-07 | 1.37E-08 | 5.67E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

HARP2 - HRACalc (dated 19044) 12/14/2020 6:43:22 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
**********
RISK SCENARIO SETTINGS

Receptor Type: Worker
Scenario: Cancer
Calculation Method: Derived

**********
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 3
Total Exposure Duration: 12

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 12
16<30 Years Bin: 0
16 to 70 Years Bin: 0

**********
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********
INHALATION

Daily breathing rate: Moderate8HR

**Worker Adjustment Factors**
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.05
Soil mixing depth (m): 0.01
Dermal climate: Mixed

**********
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Tier2 - What was changed: BAY AREA HEALTH TABLE USED|ED or start age changed|
Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to:
C:\!AERMOD\UCB01_LRDP\UCB_LRDP\hra\LRDP_MFSCancerRisk.csv
Cancer risk total by receptor saved to:
C:\!AERMOD\UCB01_LRDP\UCB_LRDP\hra\LRDP_MFSCancerRiskSumByRec.csv
HRA ran successfully

*HARP - HRACalc v19044 12/14/2020 6:43:22 AM - Cancer Risk - Input File: C:\!AERMOD\UCB01_LRDP\UCB_LRDP\hra\LRDP_MFSHRAInput.hra

| REC | GRP | NETID | X | Y | RISK_SUM | SCENARIO | INH_RISK | SOIL_RISK | DERMAL_R | MMILK_RIS | WATER_RIS | FISH_RISK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1728 | CARTGRID | | 564853.6 | 4192194 | 9.15E-07 | 12YrCancer | 9.07E-07 | 7.03E-09 | 8.65E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

# Appendix D2
# Housing Project #1 (Anchor House)
# Health Risk Assessment

# 1. Health Risk Assessment

## 1.1 CONSTRUCTION HEALTH RISK ASSESSMENT

The University of California Berkeley (UC Berkeley or the university) proposes to develop Long Range Development Plan (LRDP) Update and Housing Projects #1 and #2 in the City of Berkeley. This health risk assessment focuses on impacts from Housing Project #1. The Housing Project #1 site is an 0.92-acre site located at the southwest corner of Berkeley Way and Oxford Street in the City of Berkeley, Alameda County, California. Housing Project #1 would involve demolition and debris hauling, site preparation, grading and soil haul, trenching, and installation of restrooms and other site improvements. The following provides the background methodology used for the construction health risk assessment for Housing Project #1.

The latest version of the Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines requires projects to evaluate the impacts of construction activities on sensitive receptors (BAAQMD, 2017). Project construction is anticipated to take place starting at the beginning of September 2021 and be completed by July 2024 (approximately 739 workdays). The nearest sensitive receptors to the project site include the multifamily apartments to the north of the site along Berkeley Way and Oxford Street. The BAAQMD has developed *Screening Tables for Air Toxics Evaluation During Construction* (2017) that evaluate construction-related health risks associated with residential, commercial, and industrial projects. According to the screening tables, the residences are closer than the distance of 100 meters (328 feet) that would screen out potential health risks and, therefore, could be potentially impacted from the proposed construction activities. As a result, a site-specific construction health risk assessment (HRA) has been prepared for Housing Project #1. This HRA considers the health impact to off-site sensitive receptors (children at the nearby residences) from construction emissions at the project site, including diesel equipment exhaust (diesel particulate matter or DPM) and particulate matter less than 2.5 microns ($PM_{2.5}$).

It should be noted that these health impacts are based on conservative (i.e., health protective) assumptions. The United States Environmental Protection Agency (USEPA, 2005) and the Office of Environmental Health Hazard Assessment (OEHHA, 2015) note that conservative assumptions used in a risk assessment are intended to ensure that the estimated risks do not underestimate the actual risks. Therefore, the estimated risks may not necessarily represent actual risks experienced by populations at or near a site. The use of conservative assumptions tends to produce upper-bound estimates of exposure and thus risk.

For residential-based receptors, the following conservative assumptions were used:

- It was assumed that maximum-exposed off-site residential receptors (both children and adults) stood outdoors and are subject to DPM at their residence for 8 hours per day, and approximately 260 construction days per year. In reality, California residents typically will spend on average 2 hours per day outdoors at their residences (USEPA, 2011). This would result in lower exposures to construction related DPM emissions and lower estimated risk values.

- The calculated risk for infants from third trimester to age 2 is multiplied by a factor of 10 to account for early life exposure and uncertainty in child versus adult exposure impacts (OEHHA, 2015).

## 1.2 METHODOLOGY AND SIGNIFICANCE THRESHOLDS

For this HRA, the BAAQMD significance thresholds were deemed to be appropriate and the thresholds that were used for this project are shown below:

- Excess cancer risk of more than 10 in a million
- Non-cancer hazard index (chronic or acute) greater than 1.0
- Incremental increase in average annual $PM_{2.5}$ concentration of greater than 0.3 $\mu g/m^3$

The methodology used in this HRA is consistent with the following BAAQMD and the OEHHA guidance documents:

- BAAQMD, 2017. *California Environmental Quality Act (CEQA) Air Quality Guidelines*. May 2017.
- BAAQMD, 2016. *Planning Healthy Places*. May 2016.
- BAAQMD, 2010. *Screening Tables for Air Toxics Evaluation During Construction.* May 2010.
- BAAQMD, 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. Version 3.0. May 2012.
- OEHHA. 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments.* February, 2015.

Potential exposures to DPM and $PM_{2.5}$ from proposed project construction were evaluated for off-site sensitive receptors in close proximity to the site. Pollutant concentrations were estimated using an air dispersion model, and excess lifetime cancer risks and chronic non-cancer hazard indexes were calculated. These risks were then compared to the significance thresholds adopted for this HRA.

## 1.3 CONSTRUCTION EMISSIONS

Construction emissions were calculated as average daily emissions in pounds per day, using the proposed construction schedule and the latest version of California Emissions Estimation Model, known as CalEEMod Version 2016.3.2 (CAPCOA, 2016). DPM emissions were based on the CalEEMod construction runs, using annual exhaust $PM_{10}$ construction emissions presented in pounds (lbs) per day. The $PM_{2.5}$ emissions were taken from the CalEEMod output for exhaust $PM_{2.5}$ also presented in lbs per day.

The project was assumed to take place over 34 months (739 workdays) from beginning of September 2021 and be completed by July 2024. The average daily emission rates from construction equipment used during Housing Project #1 were determined by dividing the annual average emissions for each construction year by the number of construction days per year for each calendar year of construction (i.e., 2021, 2022, 2023, and 2024). The off-site hauling emission rates were adjusted to evaluate localized emissions from the 0.27-mile haul route within 1,000 feet of the project site. The CalEEMod construction emissions output and emission rate calculations are provided in Appendix A of the HRA.

## 1.4 DISPERSION MODELING

Air quality modeling was performed using the AERMOD atmospheric dispersion model to assess the impact of emitted compounds on sensitive receptors near the project. The model is a steady state Gaussian plume model and is an approved model by BAAQMD for estimating ground level impacts from point and fugitive sources in simple and complex terrain. The on-site construction emissions for the project were modeled as poly-area sources. The off-site mobile sources were modeled as adjacent line volume sources. The model requires additional input parameters, including chemical emission data and local meteorology. Inputs for the construction emission rates are those described in Section 1.3. Meteorological data obtained from the BAAQMD for the nearest representative meteorological station (Metro Oakland International Airport) with the five latest available years (2009 to 2013) of record were used to represent local weather conditions and prevailing winds.

The modeling analysis also considered the spatial distribution and elevation of each emitting source in relation to the sensitive receptors. To accommodate the model's Cartesian grid format, direction-dependent calculations were obtained by identifying the Universal Transverse Mercator (UTM) coordinates for each source location. In addition, digital elevation model (DEM) data for the area were obtained and included in the model runs to account for complex terrain. An emission release height of 4.15 meters was used as representative of the stack exhaust height for off-road construction equipment and diesel truck traffic, and an initial vertical dispersion parameter of 1.93 m was used, per California Air Resources Board (CARB) guidance (2000).

To determine contaminant impacts during construction hours, the model's Season-Hour-Day (HRDOW) scalar option was invoked to predict flagpole-level concentrations (1.5 m for ground-floor receptors, 6.1 m for 2$^{nd}$-floor, and 9.1 m for 3$^{rd}$ floor) for construction emissions generated between the hours of 7:00 AM and 4:00 PM with a 1-hour lunch break. In addition, a scalar factor was applied to the risk calculations to account for the number of days residents are exposed to construction emissions per year.

A unit emission rate of 1 gram per second was used for all modeling runs. The unit emission rates were proportioned over the poly-area sources for on-site construction emissions and divided between the volume sources for off-site hauling emissions. The maximum modeled concentrations from the output files were then multiplied by the emission rates calculated in Appendix A to obtain the maximum flagpole-level concentrations at the off-site maximum exposed individual resident (MEIR). The MEIR is the multifamily residences north of the site along Berkeley Way. The MEIR location is the receptor location associated with the maximum predicted AERMOD concentrations from the on-site emission source. The calculated on-site emission rates are approximately 4 orders of magnitude higher than the calculated off-site emission rates (see Appendix A). Therefore, the maximum concentrations associated with the on-site emission sources produce the highest overall ground-level MEIR concentrations and, consequently, highest calculated health risks.

The air dispersion model output for the emission sources is presented in Appendix B. The model output DPM and $PM_{2.5}$ concentrations from the construction emission sources are provided in Appendix C.

## 1.5 RISK CHARACTERIZATION

### 1.5.1 Carcinogenic Chemical Risk

A threshold of ten in a million ($10x10^{-6}$) has been established as a level posing no significant risk for exposures to carcinogens. Health risks associated with exposure to carcinogenic compounds can be defined in terms of the probability of developing cancer as a result of exposure to a chemical at a given concentration. The cancer risk probability is determined by multiplying the chemical's annual concentration by its cancer potency factor (CPF), a measure of the carcinogenic potential of a chemical when a dose is received through the inhalation pathway. It is an upper-limit estimate of the probability of contracting cancer as a result of continuous exposure to an ambient concentration of one microgram per cubic meter ($\mu g/m^3$) over a lifetime of 70 years.

Recent guidance from OEHHA recommends a refinement to the standard point estimate approach with the use of age-specific breathing rates and age sensitivity factors (ASFs) to assess risk for susceptible subpopulations such as children. For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify dose for each age group. Once determined, contaminant dose is multiplied by the cancer potency factor in units of inverse dose expressed in milligrams per kilogram per day $(mg/kg/day)^{-1}$ to derive the cancer risk estimate. Therefore, to accommodate the unique exposures associated with the sensitive receptors, the following dose algorithm was used.

$$\text{Dose}_{\text{AIR,per age group}} = (C_{air} \times EF \times [\frac{BR}{BW}] \times A \times CF)$$

Where:

| | | |
|---|---|---|
| $Dose_{AIR}$ | = | dose by inhalation (mg/kg-day), per age group |
| $C_{air}$ | = | concentration of contaminant in air ($\mu g/m^3$) |
| EF | = | exposure frequency (number of days/365 days) |
| BR/BW | = | daily breathing rate normalized to body weight (L/kg-day) |
| A | = | inhalation absorption factor (default = 1) |
| CF | = | conversion factor ($1x10^{-6}$, µg to mg, L to $m^3$) |

The inhalation absorption factor (A) is a unitless factor that is only used if the cancer potency factor included a correction for absorption across the lung. The default value of 1 was used for this assessment. For residential receptors, the exposure frequency (EF) of 0.96 is used to represent 350 days per year to allow for a two week period away from home each year (OEHHA, 2015). The 95th percentile daily breathing rates (BR/BW), exposure duration (ED), age sensitivity factors (ASFs), and fraction of time at home (FAH) for the various age groups are provided herein:

| Age Groups | BR/BW (L/kg-day) | ED | ASF | FAH |
|---|---|---|---|---|
| Third trimester | 361 | 0.25 | 10 | 0.85 |
| 0-2 age group | 1,090 | 2 | 10 | 0.85 |
| 2-9 age group | 861 | 7 | 3 | 0.72 |
| 2-16 age group | 745 | 14 | 3 | 0.72 |

| | | | | |
|---|---|---|---|---|
| 16-30 age group | 335 | 14 | 1 | 0.73 |
| 16-70 age group | 290 | 54 | 1 | 0.73 |

For construction analysis, the exposure duration spans the length of construction (e.g. 739 workdays, approximately 2.83 years). As the length of construction is greater than 2 years, the third trimester, 0-2, and 2-9 age bins apply to the construction analysis for the off-site residential receptors.

To calculate the overall cancer risk, the risk for each appropriate age group is calculated per the following equation:

$$\text{Cancer Risk}_{\text{AIR}} = \text{Dose}_{\text{AIR}} \times \text{CPF} \times \text{ASF} \times \text{FAH} \times \frac{\text{ED}}{AT}$$

Where:

| | | |
|---|---|---|
| $\text{Dose}_{\text{AIR}}$ | = | dose by inhalation (mg/kg-day), per age group |
| CPF | = | cancer potency factor, chemical-specific $(\text{mg/kg-day})^{-1}$ |
| ASF | = | age sensitivity factor, per age group |
| FAH | = | fraction of time at home, per age group (for residential receptors only) |
| ED | = | exposure duration (years) |
| AT | = | averaging time period over which exposure duration is averaged (70 years) |

The CPFs used in the assessment were obtained from OEHHA guidance. The excess lifetime cancer risks during the construction period to the maximally exposed resident were calculated based on the factors provided above. The cancer risks for each age group are summed to estimate the total cancer risk for each toxic chemical species. The final step converts the cancer risk in scientific notation to a whole number that expresses the cancer risk in "chances per million" by multiplying the cancer risk by a factor of $1 \times 10^6$ (i.e. 1 million).

The calculated results are provided in Appendix C.

### 1.5.2 Non-Carcinogenic Hazards

An evaluation was also conducted of the potential non-cancer effects of chronic chemical exposures. Adverse health effects are evaluated by comparing the annual receptor level (flagpole) concentration of each chemical compound with the appropriate reference exposure limit (REL). Available RELs promulgated by OEHHA were considered in the assessment.

The hazard index approach was used to quantify non-carcinogenic impacts. The hazard index assumes that chronic sub-threshold exposures adversely affect a specific organ or organ system (toxicological endpoint). Target organs presented in regulatory guidance were used for each discrete chemical exposure. To calculate the hazard index, each chemical concentration or dose is divided by the appropriate toxicity value. This ratio is summed for compounds affecting the same toxicological endpoint. A health hazard is presumed to exist where the total equals or exceeds one.

The chronic hazard analysis for DPM is provided in Appendix C. The calculations contain the relevant exposure concentrations and corresponding reference dose values used in the evaluation of non-carcinogenic exposures.

### 1.5.3 Criteria Pollutants

The BAAQMD has recently incorporated $PM_{2.5}$ into the District's CEQA significance thresholds due to recent studies that show adverse health impacts from exposure to this pollutant. An incremental increase of greater than 0.3 $\mu g/m^3$ for the annual average $PM_{2.5}$ concentration is considered to be a significant impact.

## 1.6 CONSTRUCTION HRA RESULTS

The calculated results are provided in Appendix C and the results are summarized in Table 1.

TABLE 1. CONSTRUCTION RISK SUMMARY - UNMITIGATED

| Receptor | Cancer Risk (per million) | Chronic Hazards | $PM_{2.5}$ ($\mu g/m^3$) |
|---|---|---|---|
| Maximum Exposed Individual Resident (MEIR) | 20.2 | 0.058 | 0.08 |
| BAAQMD Threshold | 10 | 1.0 | 0.30 |
| Exceeds Threshold? | Yes | No | No |

Note: Cancer risk calculated using 2015 OEHHA HRA guidance. Modeling does not include Mitigation Measure AIR-2.1, which requires use of Tier 4 equipment for engines 50 horsepower and higher.

Cancer risk for the maximum exposed individual resident (MEIR) from project-related construction emissions was calculated to be 20.2 in a million, which would exceed the 10 in a million significance threshold. In accordance with the latest 2015 OEHHA guidance, the calculated total cancer risk conservatively assumes that the risk for the MEIR consists of a pregnant woman in the third trimester that subsequently gives birth to an infant during the approximately 34-month construction period; therefore, all calculated risk values were multiplied by a factor of 10 for the first 27 months and then multiplied by a factor of 3 for the remaining 7 months. In addition, it was conservatively assumed that the residents were outdoors 8 hours a day and exposed to all of the daily construction emissions. Additionally, the cancer risks for the other sensitive receptors would also not exceed 10 per million.

For non-carcinogenic effects, the chronic hazard index identified for each toxicological endpoint totaled less than one for all the off-site sensitive receptors. Therefore, chronic non-carcinogenic hazards are less than significant. Additionally, the maximum annual $PM_{2.5}$ concentration of 0.08 $\mu g/m^3$ would not exceed the BAAQMD significance threshold of 0.3 micrograms per cubic meter ($\mu g/m^3$) for all the off-site sensitive receptors.

However, Mitigation Measure AIR-2.1 from the LRDP Update Draft Environmental Impact Report (DEIR) requires Tier 4 equipment for engines 50 horsepower and higher:

> **Mitigation Measure AIR-2.1:** UC Berkeley shall use equipment that meets the United States Environmental Protection Agency Tier 4 emissions standards or higher for off-road diesel-powered construction equipment with more than 50 horsepower, unless it can be demonstrated to UC Berkeley that such equipment is not commercially available. For purposes of this mitigation measure, "commercially available" shall mean the availability of Tier 4 engines similar to the availability for other large-scale construction projects in the city occurring at the same time and taking into consideration factors such as (i) potential significant delays to critical-path timing of construction and (ii) geographic proximity to the project site of Tier 4 Final equipment. Where such equipment is not commercially available, as demonstrated by the construction contractor, Tier 3 equipment shall be used. Any emissions control device used by the contractor shall achieve emissions reductions that

are no less than what could be achieved by a Tier 4 interim emissions standard for a similarly sized engine, as defined by the California Air Resources Board's regulations. The requirement to use Tier 4 interim equipment or higher for engines over 50 horsepower shall be identified in construction bids.

- Prior to construction, the project engineer shall ensure that all demolition and grading plans clearly show the requirement for United States Environmental Protection Agency Tier 4 interim or higher emissions standards for construction equipment over 50 horsepower.
- During construction, the construction contractor shall maintain a list of all operating equipment in use on the construction site for verification by UC Berkeley.
- The construction equipment list shall state the makes, models, and numbers of construction equipment on-site.
- To the extent that equipment is available and cost-effective, contractors shall use electric, hybrid, or alternate-fueled off-road construction equipment.

Mitigation Measure AIR-2.1 would reduce the project's localized construction emissions, as shown in the following table. The results indicate that, with mitigation, cancer risk would be less than the BAAQMD's significance thresholds for residential-based receptors. Therefore, the project would not expose off-site sensitive receptors to substantial concentrations of air pollutant emissions during construction and impacts would be *less than significant* with mitigation.

TABLE 2 CONSTRUCTION RISK SUMMARY – MITIGATED

| Receptor | Cancer Risk (per million) | Chronic Hazards | $PM_{2.5}$ ($\mu g/m^3$)[a] |
|---|---|---|---|
| Maximum Exposed Receptor – Offsite Residences | 1.1 | 0.004 | 0.007 |
| BAAQMD Threshold | 10 | 1.0 | 0.3 |
| Exceeds Threshold? | No | No | No |

Modeling includes Mitigation Measure AIR-2.1, which requires use of Tier 4 equipment for engines 50 horsepower and higher.
Note: Cancer risk calculated using 2015 OEHHA HRA guidance.

# 2. References


Bay Area Air Quality Management District. 2017. *California Environmental Quality Act Air Quality Guidelines.*

———. 2016. *Planning Healthy Places.* Dated May 2016.

———. 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards.* Version 3.0. Dated May 2012.

———. 2010. Screening Tables for Air Toxics Evaluation During Construction. Version 1.0. Dated May 2010.

———. 2009-2013. Meteorological Data Set for San Carlos Airport.

California Air Pollution Control Officers Association (CAPCOA). 2016. California Emissions Estimator Model (CalEEMod). Version 2016.3.2. Prepared by: ENVIRON International Corporation and the California Air Districts.

California Air Resources Board (CARB). 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.*

———. 2020. *Meteorological Files.* https://ww2.arb.ca.gov/resources/documents/harp-aermod-meteorological-files

Office of Environmental Health Hazard Assessment (OEHHA). 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments.* Dated February 2015.

United States Environmental Protection Agency (USEPA). 2011. *Exposure Factors Handbook 2011 Edition (Final).* EPA/600/R-09/052F, 2011.

_____. 2005. *Guideline on Air Quality Models* (Revised). EPA-450/2-78-027R.

# Appendix A. Emission Rate Calculations

**Construction Emissions - DPM and PM2.5**
**Input to Risk Tables**

## Average Daily Emissions and Emission Rates: Unmitigated Scenario

| Onsite Construction PM10 Exhaust Emissions[1] | | | |
|---|---|---|---|
| Year | Average Daily Emissions (lbs/day) | Average Daily Emissions (lbs/hr) | Emission Rate (g/s) |
| 2021 | 0.42 | 5.30E-02 | 6.68E-03 |
| 2022 | 0.37 | 4.65E-02 | 5.86E-03 |
| 2023 | 0.32 | 4.00E-02 | 5.04E-03 |
| 2024 | 0.36 | 4.55E-02 | 5.73E-03 |

| Onsite Construction PM2.5 Exhaust Emissions[2] | | |
|---|---|---|
| Average Daily Emissions (lbs/day) | Average Daily Emissions (lbs/hr) | Emission Rate (g/s) |
| 0.40 | 4.98E-02 | 6.28E-03 |
| 0.34 | 4.28E-02 | 5.39E-03 |
| 0.29 | 3.68E-02 | 4.64E-03 |
| 0.34 | 4.21E-02 | 5.30E-03 |

| Offsite Construction PM10 Exhaust Emissions[1] | | | | | Offsite Construction PM2.5 Exhaust Emissions[2] | | | |
|---|---|---|---|---|---|---|---|---|
| Year | Average Daily Emissions (lbs/day) | Hauling Emissions w/in 1,000ft (lbs/day)[3] | Emission Rate (lbs/hr) | Emission Rate (g/s) | Average Daily Emissions (lbs/day) | Hauling Emissions w/in 1,000ft (lbs/day)[3] | Emission Rate (lbs/hr) | Emission Rate (g/s) |
| 2021 | 7.68E-02 | 1.04E-03 | 1.30E-04 | 1.64E-05 | 7.32E-02 | 9.93E-04 | 1.24E-04 | 1.56E-05 |
| 2022 | 4.90E-02 | 6.65E-04 | 8.31E-05 | 1.05E-05 | 4.58E-02 | 6.21E-04 | 7.76E-05 | 9.78E-06 |
| 2023 | 3.78E-02 | 5.13E-04 | 6.41E-05 | 8.07E-06 | 3.50E-02 | 4.75E-04 | 5.94E-05 | 7.48E-06 |
| 2024 | 3.89E-02 | 5.28E-04 | 6.60E-05 | 8.32E-06 | 3.59E-02 | 4.87E-04 | 6.09E-05 | 7.67E-06 |

Note: Emissions evenly distributed over 22 modeled volume sources.

| | | |
|---|---|---|
| Hauling Length (miles) | 20 | miles |
| Haul Length within 1,000 ft of Site (mile)[3] | 0.27 | miles |
| Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks)[4] | 8 | hours |

| Year | Workdays | Risk Scalar[5] |
|---|---|---|
| 2021 | 88 | 0.34 |
| 2022 | 260 | 1.00 |
| 2023 | 260 | 1.00 |
| 2024 | 131 | 0.50 |

[1] DPM emissions taken as $PM_{10}$ exhaust emissions from CalEEMod average daily emissions.

[2] $PM_{2.5}$ emissions taken as $PM_{2.5}$ exhaust emissions from CalEEMod average daily emissions.

[3] Emissions from CalEEMod offsite average daily emissions, which is based on proportioned haul truck trip distances, are adjusted to evaluate emissions from the 0.27-mile route within 1,000 of the project site.

[4] Work hours applied in By Hour/Day (HRDOW) variable emissions module in air dispersion model (see App B - Air Dispersion Model Output).

[5] Risk scalars determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App C - Risk Calculations).

**Construction Emissions - DPM and PM2.5**
**Input to Risk Tables**
**With Mitigation - Tier 4 Engines for Eq. > 50 hp**

## Average Daily Emissions and Emission Rates: Mitigated Scenario

**Onsite Construction PM10 Exhaust Emissions[1]**

| Year | Average Daily Emissions (lbs/day) | Average Daily Emissions (lbs/hr) | Emission Rate (g/s) |
|---|---|---|---|
| 2021 | 0.02 | 2.44E-03 | 3.08E-04 |
| 2022 | 0.02 | 2.33E-03 | 2.93E-04 |
| 2023 | 0.02 | 2.33E-03 | 2.93E-04 |
| 2024 | 0.04 | 4.39E-03 | 5.53E-04 |

**Onsite Construction PM2.5 Exhaust Emissions[2]**

| Average Daily Emissions (lbs/day) | Average Daily Emissions (lbs/hr) | Emission Rate (g/s) |
|---|---|---|
| 0.02 | 2.44E-03 | 3.08E-04 |
| 0.02 | 2.33E-03 | 2.93E-04 |
| 0.02 | 2.33E-03 | 2.93E-04 |
| 0.04 | 4.39E-03 | 5.53E-04 |

**Offsite Construction PM10 Exhaust Emissions[1]**

| Year | Average Daily Emissions (lbs/day) | Hauling Emissions w/in 1,000ft (lbs/day) [3] | Emission Rate (lbs/hr) | Emission Rate (g/s) |
|---|---|---|---|---|
| 2021 | 7.68E-02 | 1.04E-03 | 1.30E-04 | 1.64E-05 |
| 2022 | 4.90E-02 | 6.65E-04 | 8.31E-05 | 1.05E-05 |
| 2023 | 3.78E-02 | 5.13E-04 | 6.41E-05 | 8.07E-06 |
| 2024 | 3.89E-02 | 5.28E-04 | 6.60E-05 | 8.32E-06 |

**Offsite Construction PM2.5 Exhaust Emissions[2]**

| Average Daily Emissions (lbs/day) | Hauling Emissions w/in 1,000ft (lbs/day) [3] | Emission Rate (lbs/hr) | Emission Rate (g/s) |
|---|---|---|---|
| 7.32E-02 | 9.93E-04 | 1.24E-04 | 1.56E-05 |
| 4.58E-02 | 6.21E-04 | 7.76E-05 | 9.78E-06 |
| 3.50E-02 | 4.75E-04 | 5.94E-05 | 7.48E-06 |
| 3.59E-02 | 4.87E-04 | 6.09E-05 | 7.67E-06 |

Note: Emissions evenly distributed over 22 modeled volume sources.

| | | |
|---|---|---|
| Hauling Length (miles) | 20 | miles |
| Haul Length within 1,000 ft of Site (mile) [3] | 0.27 | miles |
| Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks) [4] | 8 | hours |

| Year | Workdays | Risk Scalar [5] |
|---|---|---|
| 2021 | 88 | 0.34 |
| 2022 | 260 | 1.00 |
| 2023 | 260 | 1.00 |
| 2024 | 131 | 0.50 |

[1] DPM emissions taken as $PM_{10}$ exhaust emissions from CalEEMod average daily emissions.

[2] $PM_{2.5}$ emissions taken as $PM_{2.5}$ exhaust emissions from CalEEMod average daily emissions.

[3] Emissions from CalEEMod offsite average daily emissions, which is based on proportioned haul truck trip distances , are adjusted to evaluate emissions from the 0.27-mile route within 1,000 of the project site.

[4] Work hours applied in By Hour/Day (HRDOW) variable emissions module in air dispersion model (see App B - Air Dispersion Model Output).

[5] Risk scalars determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App C - Risk Calculations).

# Appendix B. Air Dispersion Model Output

*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

***     MODEL SETUP OPTIONS SUMMARY       ***

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

--  DEPOSITION LOGIC  --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
**Model Uses NO WET DEPLETION.  WETDPLT  =  F

**Model Uses URBAN Dispersion Algorithm for the SBL for    23 Source(s),
for Total of    1 Urban Area(s):
Urban Population =   1671000.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.
6. Urban Roughness Length of 1.0 Meter Assumed.

**Other Options Specified:
CCVR_Sub - Meteorological data includes CCVR substitutions
TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of:  OTHER

**Model Calculates PERIOD Averages Only

**This Run Includes:     23 Source(s);       2 Source Group(s); and    1890 Receptor(s)

with:      0 POINT(s), including
0 POINTCAP(s) and      0 POINTHOR(s)
and:     22 VOLUME source(s)
and:      1 AREA type source(s)
and:      0 LINE source(s)
and:      0 RLINE/RLINEXT source(s)
and:      0 OPENPIT source(s)
and:      0 BUOYANT LINE source(s) with      0 line(s)

**Model Set To Continue RUNning After the Setup Testing.

```
**The AERMET Input Meteorological Data Version Date:  14134

**Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
         Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =     1.80 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =      3.8 MB of RAM.

**Input Runstream File:          aermod.inp
**Output Print File:             aermod.out

**Detailed Error/Message File:   UCB-01 (Anchor House) Construction HRA.err
**File for Summary of Results:   UCB-01 (Anchor House) Construction HRA.sum
```

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** VOLUME SOURCE DATA ***

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|---|---|---|---|---|---|---|---|---|---|---|
| L0000001 | 0 | 0.45455E-01 | 564531.1 | 4192002.9 | 66.0 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000002 | 0 | 0.45455E-01 | 564532.8 | 4191982.8 | 65.3 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000003 | 0 | 0.45455E-01 | 564534.5 | 4191962.7 | 64.6 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000004 | 0 | 0.45455E-01 | 564536.2 | 4191942.6 | 63.9 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000005 | 0 | 0.45455E-01 | 564537.9 | 4191922.5 | 63.3 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000006 | 0 | 0.45455E-01 | 564518.3 | 4191919.0 | 62.6 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000007 | 0 | 0.45455E-01 | 564498.3 | 4191915.8 | 61.8 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000008 | 0 | 0.45455E-01 | 564478.4 | 4191912.6 | 61.2 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000009 | 0 | 0.45455E-01 | 564458.5 | 4191909.4 | 60.8 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000010 | 0 | 0.45455E-01 | 564438.6 | 4191906.2 | 60.3 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000011 | 0 | 0.45455E-01 | 564418.7 | 4191902.9 | 60.1 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000012 | 0 | 0.45455E-01 | 564398.8 | 4191899.7 | 59.8 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000013 | 0 | 0.45455E-01 | 564378.9 | 4191896.5 | 59.5 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000014 | 0 | 0.45455E-01 | 564359.0 | 4191893.3 | 59.2 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000015 | 0 | 0.45455E-01 | 564339.1 | 4191890.1 | 58.7 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000016 | 0 | 0.45455E-01 | 564319.1 | 4191886.8 | 58.6 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000017 | 0 | 0.45455E-01 | 564299.2 | 4191883.6 | 58.4 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000018 | 0 | 0.45455E-01 | 564279.3 | 4191880.4 | 58.0 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000019 | 0 | 0.45455E-01 | 564259.4 | 4191877.2 | 57.6 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000020 | 0 | 0.45455E-01 | 564239.5 | 4191874.0 | 57.1 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000021 | 0 | 0.45455E-01 | 564219.6 | 4191870.7 | 57.0 | 4.15 | 9.38 | 3.26 | YES | HRDOW |
| L0000022 | 0 | 0.45455E-01 | 564199.7 | 4191867.5 | 56.7 | 4.15 | 9.38 | 3.26 | YES | HRDOW |

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** AREAPOLY SOURCE DATA ***

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC /METER**2) | LOCATION OF AREA X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | NUMBER OF VERTS. | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0.21093E-03 | 564468.4 | 4192002.4 | 63.6 | 4.15 | 8 | 1.93 | YES | HRDOW |

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** SOURCE IDs DEFINING SOURCE GROUPS ***

| SRCGROUP ID | SOURCE IDs |
|---|---|
| ONSITE | 1 , |
| OFFSITE | L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 , |
| | L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 , L0000016 , |
| | L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , |

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

| URBAN ID | URBAN POP | SOURCE IDs |
|---|---|---|
| 1671000. | 1 | , L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , |
| | | L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 , |
| | | L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , |

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = 1 ; SOURCE TYPE = AREAPOLY :

| HOUR | SCALAR | HOUR | SCALAR | HOUR | SCALAR | HOUR | SCALAR | HOUR | SCALAR | HOUR | SCALAR | HOUR | SCALAR | HOUR | SCALAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY OF WEEK = WEEKDAY | | | | | | | | | | | | | | | |
| 1 | .0000E+00 | 2 | .0000E+00 | 3 | .0000E+00 | 4 | .0000E+00 | 5 | .0000E+00 | 6 | .0000E+00 | 7 | .0000E+00 | 8 | .1000E+01 |
| 9 | .1000E+01 | 10 | .1000E+01 | 11 | .1000E+01 | 12 | .0000E+00 | 13 | .1000E+01 | 14 | .1000E+01 | 15 | .1000E+01 | 16 | .1000E+01 |
| 17 | .0000E+00 | 18 | .0000E+00 | 19 | .0000E+00 | 20 | .0000E+00 | 21 | .0000E+00 | 22 | .0000E+00 | 23 | .0000E+00 | 24 | .0000E+00 |
| DAY OF WEEK = SATURDAY | | | | | | | | | | | | | | | |
| 1 | .0000E+00 | 2 | .0000E+00 | 3 | .0000E+00 | 4 | .0000E+00 | 5 | .0000E+00 | 6 | .0000E+00 | 7 | .0000E+00 | 8 | .0000E+00 |
| 9 | .0000E+00 | 10 | .0000E+00 | 11 | .0000E+00 | 12 | .0000E+00 | 13 | .0000E+00 | 14 | .0000E+00 | 15 | .0000E+00 | 16 | .0000E+00 |
| 17 | .0000E+00 | 18 | .0000E+00 | 19 | .0000E+00 | 20 | .0000E+00 | 21 | .0000E+00 | 22 | .0000E+00 | 23 | .0000E+00 | 24 | .0000E+00 |
| DAY OF WEEK = SUNDAY | | | | | | | | | | | | | | | |
| 1 | .0000E+00 | 2 | .0000E+00 | 3 | .0000E+00 | 4 | .0000E+00 | 5 | .0000E+00 | 6 | .0000E+00 | 7 | .0000E+00 | 8 | .0000E+00 |
| 9 | .0000E+00 | 10 | .0000E+00 | 11 | .0000E+00 | 12 | .0000E+00 | 13 | .0000E+00 | 14 | .0000E+00 | 15 | .0000E+00 | 16 | .0000E+00 |
| 17 | .0000E+00 | 18 | .0000E+00 | 19 | .0000E+00 | 20 | .0000E+00 | 21 | .0000E+00 | 22 | .0000E+00 | 23 | .0000E+00 | 24 | .0000E+00 |

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000001 TO L0000022 ; SOURCE TYPE = VOLUME :

| HOUR | SCALAR | HOUR | SCALAR | HOUR | SCALAR | HOUR | SCALAR | HOUR | SCALAR | HOUR | SCALAR | HOUR | SCALAR | HOUR | SCALAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY OF WEEK = WEEKDAY | | | | | | | | | | | | | | | |
| 1 | .0000E+00 | 2 | .0000E+00 | 3 | .0000E+00 | 4 | .0000E+00 | 5 | .0000E+00 | 6 | .0000E+00 | 7 | .0000E+00 | 8 | .1000E+01 |
| 9 | .1000E+01 | 10 | .1000E+01 | 11 | .1000E+01 | 12 | .0000E+00 | 13 | .1000E+01 | 14 | .1000E+01 | 15 | .1000E+01 | 16 | .1000E+01 |
| 17 | .0000E+00 | 18 | .0000E+00 | 19 | .0000E+00 | 20 | .0000E+00 | 21 | .0000E+00 | 22 | .0000E+00 | 23 | .0000E+00 | 24 | .0000E+00 |
| DAY OF WEEK = SATURDAY | | | | | | | | | | | | | | | |
| 1 | .0000E+00 | 2 | .0000E+00 | 3 | .0000E+00 | 4 | .0000E+00 | 5 | .0000E+00 | 6 | .0000E+00 | 7 | .0000E+00 | 8 | .0000E+00 |
| 9 | .0000E+00 | 10 | .0000E+00 | 11 | .0000E+00 | 12 | .0000E+00 | 13 | .0000E+00 | 14 | .0000E+00 | 15 | .0000E+00 | 16 | .0000E+00 |
| 17 | .0000E+00 | 18 | .0000E+00 | 19 | .0000E+00 | 20 | .0000E+00 | 21 | .0000E+00 | 22 | .0000E+00 | 23 | .0000E+00 | 24 | .0000E+00 |
| DAY OF WEEK = SUNDAY | | | | | | | | | | | | | | | |
| 1 | .0000E+00 | 2 | .0000E+00 | 3 | .0000E+00 | 4 | .0000E+00 | 5 | .0000E+00 | 6 | .0000E+00 | 7 | .0000E+00 | 8 | .0000E+00 |
| 9 | .0000E+00 | 10 | .0000E+00 | 11 | .0000E+00 | 12 | .0000E+00 | 13 | .0000E+00 | 14 | .0000E+00 | 15 | .0000E+00 | 16 | .0000E+00 |
| 17 | .0000E+00 | 18 | .0000E+00 | 19 | .0000E+00 | 20 | .0000E+00 | 21 | .0000E+00 | 22 | .0000E+00 | 23 | .0000E+00 | 24 | .0000E+00 |

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: ..\met data-1.8m\724930\724930.SFC Met Version: 14134
Profile file: ..\met data-1.8m\724930\724930.PFL
Surface format: FREE
Profile format: FREE
Surface station no.: 23230 Upper air station no.: 23230
Name: OAKLAND/WSO_AP Name: OAKLAND/WSO_AP
Year: 2009 Year: 2009

First 24 hours of scalar data

| YR | MO | DY | JDY | HR | H0 | U* | W* | DT/DZ | ZICNV | ZIMCH | M-O LEN | Z0 | BOWEN | ALBEDO | REF WS | WD | HT | REF TA | HT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 09 | 01 | 01 | 1 | 01 | -17.2 | 0.303 | -9.000 | -9.000 | -999. | 401. | 147.2 | 0.63 | 0.86 | 1.00 | 2.36 | 81. | 10.0 | 282.5 | 2.0 |
| 09 | 01 | 01 | 1 | 02 | -21.8 | 0.383 | -9.000 | -9.000 | -999. | 569. | 234.6 | 0.63 | 0.86 | 1.00 | 2.86 | 68. | 10.0 | 282.0 | 2.0 |
| 09 | 01 | 01 | 1 | 03 | -26.3 | 0.460 | -9.000 | -9.000 | -999. | 749. | 337.1 | 0.63 | 0.86 | 1.00 | 3.36 | 84. | 10.0 | 280.9 | 2.0 |
| 09 | 01 | 01 | 1 | 04 | -15.4 | 0.270 | -9.000 | -9.000 | -999. | 368. | 116.1 | 0.47 | 0.86 | 1.00 | 2.36 | 53. | 10.0 | 280.9 | 2.0 |
| 09 | 01 | 01 | 1 | 05 | -26.3 | 0.460 | -9.000 | -9.000 | -999. | 749. | 336.3 | 0.63 | 0.86 | 1.00 | 3.36 | 73. | 10.0 | 280.4 | 2.0 |
| 09 | 01 | 01 | 1 | 06 | -21.9 | 0.383 | -9.000 | -9.000 | -999. | 573. | 232.9 | 0.63 | 0.86 | 1.00 | 2.86 | 82. | 10.0 | 280.4 | 2.0 |
| 09 | 01 | 01 | 1 | 07 | -22.0 | 0.383 | -9.000 | -9.000 | -999. | 569. | 232.5 | 0.63 | 0.86 | 1.00 | 2.86 | 95. | 10.0 | 279.9 | 2.0 |
| 09 | 01 | 01 | 1 | 08 | -11.2 | 0.196 | -9.000 | -9.000 | -999. | 238. | 60.6 | 0.63 | 0.86 | 0.76 | 1.76 | 73. | 10.0 | 279.9 | 2.0 |
| 09 | 01 | 01 | 1 | 09 | -2.2 | -9.000 | -9.000 | -9.000 | -999. | -999. | -99999.0 | 0.45 | 0.86 | 0.39 | 0.00 | 0. | 10.0 | 280.4 | 2.0 |
| 09 | 01 | 01 | 1 | 10 | 6.8 | 0.266 | 0.264 | 0.016 | 98. | 329. | -250.8 | 0.63 | 0.86 | 0.27 | 1.76 | 91. | 10.0 | 280.9 | 2.0 |
| 09 | 01 | 01 | 1 | 11 | 15.5 | -9.000 | -9.000 | -9.000 | 177. | -999. | -99999.0 | 0.45 | 0.86 | 0.22 | 0.00 | 0. | 10.0 | 282.0 | 2.0 |
| 09 | 01 | 01 | 1 | 12 | 96.1 | 0.393 | 1.019 | 0.014 | 401. | 591. | -57.4 | 0.22 | 0.86 | 0.21 | 3.36 | 266. | 10.0 | 281.4 | 2.0 |
| 09 | 01 | 01 | 1 | 13 | 102.5 | 0.395 | 1.092 | 0.014 | 462. | 595. | -54.4 | 0.22 | 0.86 | 0.20 | 3.36 | 283. | 10.0 | 282.0 | 2.0 |
| 09 | 01 | 01 | 1 | 14 | 89.9 | 0.297 | 1.066 | 0.015 | 489. | 394. | -26.5 | 0.22 | 0.86 | 0.21 | 2.36 | 249. | 10.0 | 282.0 | 2.0 |
| 09 | 01 | 01 | 1 | 15 | 62.1 | 0.383 | 0.954 | 0.014 | 507. | 569. | -82.1 | 0.22 | 0.86 | 0.24 | 3.36 | 242. | 10.0 | 282.5 | 2.0 |
| 09 | 01 | 01 | 1 | 16 | 23.1 | 0.665 | 0.690 | 0.006 | 513. | 1300. | -1150.4 | 0.52 | 0.86 | 0.33 | 4.86 | 304. | 10.0 | 282.5 | 2.0 |
| 09 | 01 | 01 | 1 | 17 | -37.0 | 0.486 | -9.000 | -9.000 | -999. | 846. | 280.6 | 0.22 | 0.86 | 0.56 | 4.86 | 291. | 10.0 | 281.4 | 2.0 |
| 09 | 01 | 01 | 1 | 18 | -52.2 | 0.480 | -9.000 | -9.000 | -999. | 799. | 191.9 | 0.52 | 0.86 | 1.00 | 3.86 | 307. | 10.0 | 280.9 | 2.0 |
| 09 | 01 | 01 | 1 | 19 | -25.6 | 0.224 | -9.000 | -9.000 | -999. | 327. | 39.8 | 0.52 | 0.86 | 1.00 | 2.36 | 334. | 10.0 | 280.4 | 2.0 |
| 09 | 01 | 01 | 1 | 20 | -11.1 | 0.119 | -9.000 | -9.000 | -999. | 115. | 13.8 | 0.52 | 0.86 | 1.00 | 1.76 | 317. | 10.0 | 280.4 | 2.0 |
| 09 | 01 | 01 | 1 | 21 | -10.3 | 0.119 | -9.000 | -9.000 | -999. | 98. | 14.7 | 0.52 | 0.86 | 1.00 | 1.76 | 320. | 10.0 | 280.4 | 2.0 |
| 09 | 01 | 01 | 1 | 22 | -999.0 | -9.000 | -9.000 | -9.000 | -999. | -999. | -99999.0 | 0.45 | 0.86 | 1.00 | 0.00 | 0. | 10.0 | 280.9 | 2.0 |
| 09 | 01 | 01 | 1 | 23 | -999.0 | -9.000 | -9.000 | -9.000 | -999. | -999. | -99999.0 | 0.45 | 0.86 | 1.00 | 0.00 | 0. | 10.0 | 281.4 | 2.0 |
| 09 | 01 | 01 | 1 | 24 | -999.0 | -9.000 | -9.000 | -9.000 | -999. | -999. | -99999.0 | 0.45 | 0.86 | 1.00 | 0.00 | 0. | 10.0 | 281.4 | 2.0 |

First hour of profile data

| YR | MO | DY | HR | HEIGHT | F | WDIR | WSPD | AMB_TMP | sigmaA | sigmaW | sigmaV |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 09 | 01 | 01 | 01 | 10.0 | 1 | 81. | 2.36 | 282.6 | 99.0 | -99.00 | -99.00 |

F indicates top of profile (=1) or below (=0)

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** THE PERIOD ( 43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ONSITE ***
INCLUDING SOURCE(S): 1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

| X-COORD (M) | Y-COORD (M) | CONC | X-COORD (M) | Y-COORD (M) | CONC |
|---|---|---|---|---|---|
| 564608.28 | 4192268.36 | 0.31779 | 564618.28 | 4192268.36 | 0.31551 |
| 564628.28 | 4192268.36 | 0.31346 | 564638.28 | 4192268.36 | 0.31181 |
| 564648.28 | 4192268.36 | 0.31012 | 564658.28 | 4192268.36 | 0.30828 |
| 564668.28 | 4192268.36 | 0.30627 | 564678.28 | 4192268.36 | 0.30390 |
| 564688.28 | 4192268.36 | 0.30098 | 564698.28 | 4192268.36 | 0.29774 |
| 564708.28 | 4192268.36 | 0.29480 | 564728.28 | 4192268.36 | 0.28828 |
| 564528.28 | 4192278.36 | 0.31012 | 564538.28 | 4192278.36 | 0.30803 |
| 564548.28 | 4192278.36 | 0.30562 | 564558.28 | 4192278.36 | 0.30333 |
| 564568.28 | 4192278.36 | 0.30149 | 564578.28 | 4192278.36 | 0.29968 |
| 564588.28 | 4192278.36 | 0.29752 | 564608.28 | 4192278.36 | 0.29356 |
| 564618.28 | 4192278.36 | 0.29155 | 564628.28 | 4192278.36 | 0.28974 |
| 564638.28 | 4192278.36 | 0.28798 | 564648.28 | 4192278.36 | 0.28623 |
| 564658.28 | 4192278.36 | 0.28462 | 564668.28 | 4192278.36 | 0.28298 |
| 564678.28 | 4192278.36 | 0.28107 | 564688.28 | 4192278.36 | 0.27870 |
| 564698.28 | 4192278.36 | 0.27601 | 564708.28 | 4192278.36 | 0.27365 |
| 564728.28 | 4192278.36 | 0.26831 | 564518.28 | 4192288.36 | 0.28990 |
| 564528.28 | 4192288.36 | 0.28833 | 564538.28 | 4192288.36 | 0.28598 |
| 564548.28 | 4192288.36 | 0.28326 | 564558.28 | 4192288.36 | 0.28082 |
| 564568.28 | 4192288.36 | 0.27902 | 564578.28 | 4192288.36 | 0.27726 |
| 564588.28 | 4192288.36 | 0.27560 | 564608.28 | 4192288.36 | 0.27234 |
| 564618.28 | 4192288.36 | 0.27022 | 564628.28 | 4192288.36 | 0.26833 |
| 564638.28 | 4192288.36 | 0.26683 | 564648.28 | 4192288.36 | 0.26540 |
| 564658.28 | 4192288.36 | 0.26387 | 564668.28 | 4192288.36 | 0.26220 |
| 564678.28 | 4192288.36 | 0.26037 | 564688.28 | 4192288.36 | 0.25839 |
| 564698.28 | 4192288.36 | 0.25619 | 564708.28 | 4192288.36 | 0.25411 |
| 564518.28 | 4192298.36 | 0.27037 | 564528.28 | 4192298.36 | 0.26874 |
| 564538.28 | 4192298.36 | 0.26613 | 564548.28 | 4192298.36 | 0.26318 |
| 564558.28 | 4192298.36 | 0.26065 | 564568.28 | 4192298.36 | 0.25890 |
| 564578.28 | 4192298.36 | 0.25722 | 564588.28 | 4192298.36 | 0.25599 |
| 564608.28 | 4192298.36 | 0.25324 | 564618.28 | 4192298.36 | 0.25101 |
| 564628.28 | 4192298.36 | 0.24906 | 564638.28 | 4192298.36 | 0.24779 |
| 564648.28 | 4192298.36 | 0.24660 | 564658.28 | 4192298.36 | 0.24511 |
| 564668.28 | 4192298.36 | 0.24339 | 564678.28 | 4192298.36 | 0.24165 |
| 564688.28 | 4192298.36 | 0.24006 | 564698.28 | 4192298.36 | 0.23823 |
| 564708.28 | 4192298.36 | 0.23636 | 564518.28 | 4192308.36 | 0.25278 |
| 564528.28 | 4192308.36 | 0.25104 | 564538.28 | 4192308.36 | 0.24827 |
| 564548.28 | 4192308.36 | 0.24517 | 564558.28 | 4192308.36 | 0.24261 |

| | | | | | |
|---|---|---|---|---|---|
| 564568.28 | 4192308.36 | 0.24092 | 564578.28 | 4192308.36 | 0.23928 |
| 564588.28 | 4192308.36 | 0.23835 | 564608.28 | 4192308.36 | 0.23601 |
| 564618.28 | 4192308.36 | 0.23369 | 564628.28 | 4192308.36 | 0.23168 |

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** THE PERIOD ( 43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ONSITE ***
INCLUDING SOURCE(S): 1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

| X-COORD (M) | Y-COORD (M) | CONC | X-COORD (M) | Y-COORD (M) | CONC |
|---|---|---|---|---|---|
| 564638.28 | 4192308.36 | 0.23058 | 564648.28 | 4192308.36 | 0.22957 |
| 564658.28 | 4192308.36 | 0.22811 | 564668.28 | 4192308.36 | 0.22637 |
| 564678.28 | 4192308.36 | 0.22473 | 564688.28 | 4192308.36 | 0.22340 |
| 564698.28 | 4192308.36 | 0.22189 | 564708.28 | 4192308.36 | 0.22020 |
| 564518.28 | 4192318.36 | 0.23751 | 564528.28 | 4192318.36 | 0.23580 |
| 564538.28 | 4192318.36 | 0.23328 | 564548.28 | 4192318.36 | 0.23051 |
| 564558.28 | 4192318.36 | 0.22799 | 564568.28 | 4192318.36 | 0.22594 |
| 564578.28 | 4192318.36 | 0.22395 | 564588.28 | 4192318.36 | 0.22283 |
| 564608.28 | 4192318.36 | 0.22032 | 564618.28 | 4192318.36 | 0.21824 |
| 564628.28 | 4192318.36 | 0.21646 | 564363.67 | 4191910.20 | 0.85908 |
| 564373.67 | 4191910.20 | 0.96318 | 564383.67 | 4191910.20 | 1.08592 |
| 564393.67 | 4191910.20 | 1.23253 | 564403.67 | 4191910.20 | 1.40819 |
| 564413.67 | 4191910.20 | 1.61926 | 564363.67 | 4191920.20 | 0.89756 |
| 564373.67 | 4191920.20 | 1.01189 | 564383.67 | 4191920.20 | 1.14895 |
| 564393.67 | 4191920.20 | 1.31587 | 564403.67 | 4191920.20 | 1.52049 |
| 564413.67 | 4191920.20 | 1.77315 | 564423.67 | 4191920.20 | 2.08763 |
| 564433.67 | 4191920.20 | 2.48406 | 564443.67 | 4191920.20 | 3.00105 |
| 564453.67 | 4191920.20 | 3.70340 | 564463.67 | 4191920.20 | 4.71703 |
| 564353.67 | 4191930.20 | 0.82962 | 564363.67 | 4191930.20 | 0.93436 |
| 564373.67 | 4191930.20 | 1.05868 | 564383.67 | 4191930.20 | 1.20936 |
| 564393.67 | 4191930.20 | 1.39682 | 564403.67 | 4191930.20 | 1.63147 |
| 564413.67 | 4191930.20 | 1.92774 | 564423.67 | 4191930.20 | 2.30508 |
| 564433.67 | 4191930.20 | 2.80217 | 564443.67 | 4191930.20 | 3.48220 |
| 564453.67 | 4191930.20 | 4.48501 | 564463.67 | 4191930.20 | 6.08604 |
| 564373.67 | 4191940.20 | 1.10321 | 564383.67 | 4191940.20 | 1.26698 |
| 564393.67 | 4191940.20 | 1.47367 | 564403.67 | 4191940.20 | 1.73678 |
| 564413.67 | 4191940.20 | 2.07567 | 564423.67 | 4191940.20 | 2.51833 |
| 564433.67 | 4191940.20 | 3.11597 | 564443.67 | 4191940.20 | 3.97605 |
| 564453.67 | 4191940.20 | 5.30155 | 564433.67 | 4191950.20 | 3.39740 |
| 564443.67 | 4191950.20 | 4.42501 | 564453.67 | 4191950.20 | 6.04632 |
| 564433.67 | 4191960.20 | 3.64152 | 564443.67 | 4191960.20 | 4.81481 |
| 564453.67 | 4191960.20 | 6.68666 | 564423.67 | 4191970.20 | 2.99278 |
| 564433.67 | 4191970.20 | 3.82743 | 564443.67 | 4191970.20 | 4.62853 |
| 564453.67 | 4191970.20 | 6.32124 | 564423.67 | 4191980.20 | 3.10315 |
| 564433.67 | 4191980.20 | 3.67800 | 564443.67 | 4191980.20 | 4.82393 |
| 564453.67 | 4191980.20 | 6.61873 | 564423.67 | 4191990.20 | 2.97697 |
| 564433.67 | 4191990.20 | 3.75689 | 564443.67 | 4191990.20 | 4.89913 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 564453.67 | 4191990.20 | 6.70033 | | 564497.71 | 4192021.37 | 11.76009 |
| 564507.89 | 4192022.30 | 12.36682 | (MEIR LOCATION) | 564521.60 | 4192024.33 | 11.91055 |
| 564495.30 | 4192028.22 | 8.96380 | | 564505.30 | 4192028.22 | 9.69631 |

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** THE PERIOD ( 43872 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: OFFSITE ***
INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 ,
L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 ,
L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 ,
L0000022 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

| X-COORD (M) | Y-COORD (M) | CONC | X-COORD (M) | Y-COORD (M) | CONC |
|---|---|---|---|---|---|
| 564638.28 | 4192308.36 | 0.16626 | 564648.28 | 4192308.36 | 0.16435 |
| 564658.28 | 4192308.36 | 0.16219 | 564668.28 | 4192308.36 | 0.15989 |
| 564678.28 | 4192308.36 | 0.15775 | 564688.28 | 4192308.36 | 0.15594 |
| 564698.28 | 4192308.36 | 0.15417 | 564708.28 | 4192308.36 | 0.15242 |
| 564518.28 | 4192318.36 | 0.18133 | 564528.28 | 4192318.36 | 0.17945 |
| 564538.28 | 4192318.36 | 0.17712 | 564548.28 | 4192318.36 | 0.17470 |
| 564558.28 | 4192318.36 | 0.17248 | 564568.28 | 4192318.36 | 0.17056 |
| 564578.28 | 4192318.36 | 0.16862 | 564588.28 | 4192318.36 | 0.16722 |
| 564608.28 | 4192318.36 | 0.16385 | 564618.28 | 4192318.36 | 0.16142 |
| 564628.28 | 4192318.36 | 0.15913 | 564363.67 | 4191910.20 | 7.15772 |
| 564373.67 | 4191910.20 | 9.84021 | 564383.67 | 4191910.20 | 7.94315 |
| 564393.67 | 4191910.20 | 7.58235 | 564403.67 | 4191910.20 | 8.81374 |
| 564413.67 | 4191910.20 | 8.20244 | 564363.67 | 4191920.20 | 8.13172 |
| 564373.67 | 4191920.20 | 8.63201 | 564383.67 | 4191920.20 | 9.19784 |
| 564393.67 | 4191920.20 | 8.01629 | 564403.67 | 4191920.20 | 8.29574 |
| 564413.67 | 4191920.20 | 9.07904 | 564423.67 | 4191920.20 | 7.61003 |
| 564433.67 | 4191920.20 | 10.26568 | 564443.67 | 4191920.20 | 8.36868 |
| 564453.67 | 4191920.20 | 8.03201 | 564463.67 | 4191920.20 | 9.15370 |
| 564353.67 | 4191930.20 | 5.83043 | 564363.67 | 4191930.20 | 6.15491 |
| 564373.67 | 4191930.20 | 6.47089 | 564383.67 | 4191930.20 | 6.79778 |
| 564393.67 | 4191930.20 | 7.18725 | 564403.67 | 4191930.20 | 7.62577 |
| 564413.67 | 4191930.20 | 8.08877 | 564423.67 | 4191930.20 | 8.57250 |
| 564433.67 | 4191930.20 | 9.10190 | 564443.67 | 4191930.20 | 9.67400 |
| 564453.67 | 4191930.20 | 10.28621 | 564463.67 | 4191930.20 | 11.01233 |
| 564373.67 | 4191940.20 | 5.11583 | 564383.67 | 4191940.20 | 5.34589 |
| 564393.67 | 4191940.20 | 5.61679 | 564403.67 | 4191940.20 | 5.91570 |
| 564413.67 | 4191940.20 | 6.22576 | 564423.67 | 4191940.20 | 6.55025 |
| 564433.67 | 4191940.20 | 6.89231 | 564443.67 | 4191940.20 | 7.25315 |
| 564453.67 | 4191940.20 | 7.65168 | 564433.67 | 4191950.20 | 5.43759 |
| 564443.67 | 4191950.20 | 5.71988 | 564453.67 | 4191950.20 | 6.02511 |
| 564433.67 | 4191960.20 | 4.43705 | 564443.67 | 4191960.20 | 4.66256 |
| 564453.67 | 4191960.20 | 4.91888 | 564423.67 | 4191970.20 | 3.55402 |
| 564433.67 | 4191970.20 | 3.71634 | 564443.67 | 4191970.20 | 3.90606 |
| 564453.67 | 4191970.20 | 4.12992 | 564423.67 | 4191980.20 | 3.05411 |

| | | |
|---|---|---|
| 564433.67 | 4191980.20 | 3.18811 |
| 564453.67 | 4191980.20 | 3.54046 |
| 564433.67 | 4191990.20 | 2.76762 |
| 564453.67 | 4191990.20 | 3.08149 |
| 564507.89 | 4192022.30 | 3.49775 |
| 564495.30 | 4192028.22 | 2.71697 |

| | | |
|---|---|---|
| 564443.67 | 4191980.20 | 3.34940 |
| 564423.67 | 4191990.20 | 2.65063 |
| 564443.67 | 4191990.20 | 2.91394 |
| 564497.71 | 4192021.37 | 3.09925 |
| 564521.60 | 4192024.33 | 4.04945 |
| 564505.30 | 4192028.22 | 3.02815 |

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** THE SUMMARY OF MAXIMUM PERIOD ( 43872 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

| GROUP ID | AVERAGE CONC | RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) | OF TYPE | NETWORK GRID-ID |
|---|---|---|---|---|
| ONSITE | 1ST HIGHEST VALUE IS 12.36682 AT | ( 564507.89, 4192022.30, 65.46, 275.70, 6.10) | DC | |
| | 2ND HIGHEST VALUE IS 11.91055 AT | ( 564521.60, 4192024.33, 66.05, 275.70, 6.10) | DC | |
| | 3RD HIGHEST VALUE IS 11.76009 AT | ( 564497.71, 4192021.37, 65.04, 275.70, 6.10) | DC | |
| | 4TH HIGHEST VALUE IS 9.92327 AT | ( 564515.30, 4192028.78, 65.85, 275.70, 6.10) | DC | |
| | 5TH HIGHEST VALUE IS 9.69631 AT | ( 564505.30, 4192028.22, 65.42, 275.70, 6.10) | DC | |
| | 6TH HIGHEST VALUE IS 8.96380 AT | ( 564495.30, 4192028.22, 65.06, 275.70, 6.10) | DC | |
| | 7TH HIGHEST VALUE IS 8.19165 AT | ( 564521.60, 4192024.33, 66.05, 275.70, 9.10) | DC | |
| | 8TH HIGHEST VALUE IS 7.98207 AT | ( 564507.89, 4192022.30, 65.46, 275.70, 9.10) | DC | |
| | 9TH HIGHEST VALUE IS 7.49945 AT | ( 564497.71, 4192021.37, 65.04, 275.70, 9.10) | DC | |
| | 10TH HIGHEST VALUE IS 7.21746 AT | ( 564515.30, 4192038.22, 66.20, 275.70, 6.10) | DC | |
| OFFSITE | 1ST HIGHEST VALUE IS 11.01233 AT | ( 564463.67, 4191930.20, 61.15, 275.70, 6.10) | DC | |
| | 2ND HIGHEST VALUE IS 10.28621 AT | ( 564453.67, 4191930.20, 60.95, 275.70, 6.10) | DC | |
| | 3RD HIGHEST VALUE IS 10.26568 AT | ( 564433.67, 4191920.20, 60.48, 275.70, 6.10) | DC | |
| | 4TH HIGHEST VALUE IS 9.84021 AT | ( 564373.67, 4191910.20, 59.76, 275.70, 6.10) | DC | |
| | 5TH HIGHEST VALUE IS 9.67400 AT | ( 564443.67, 4191930.20, 60.78, 275.70, 6.10) | DC | |
| | 6TH HIGHEST VALUE IS 9.19784 AT | ( 564383.67, 4191920.20, 60.12, 275.70, 6.10) | DC | |
| | 7TH HIGHEST VALUE IS 9.15370 AT | ( 564463.67, 4191920.20, 61.01, 275.70, 6.10) | DC | |
| | 8TH HIGHEST VALUE IS 9.10190 AT | ( 564433.67, 4191930.20, 60.62, 275.70, 6.10) | DC | |
| | 9TH HIGHEST VALUE IS 9.07904 AT | ( 564413.67, 4191920.20, 60.27, 275.70, 6.10) | DC | |
| | 10TH HIGHEST VALUE IS 8.81374 AT | ( 564403.67, 4191910.20, 60.03, 275.70, 6.10) | DC | |

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

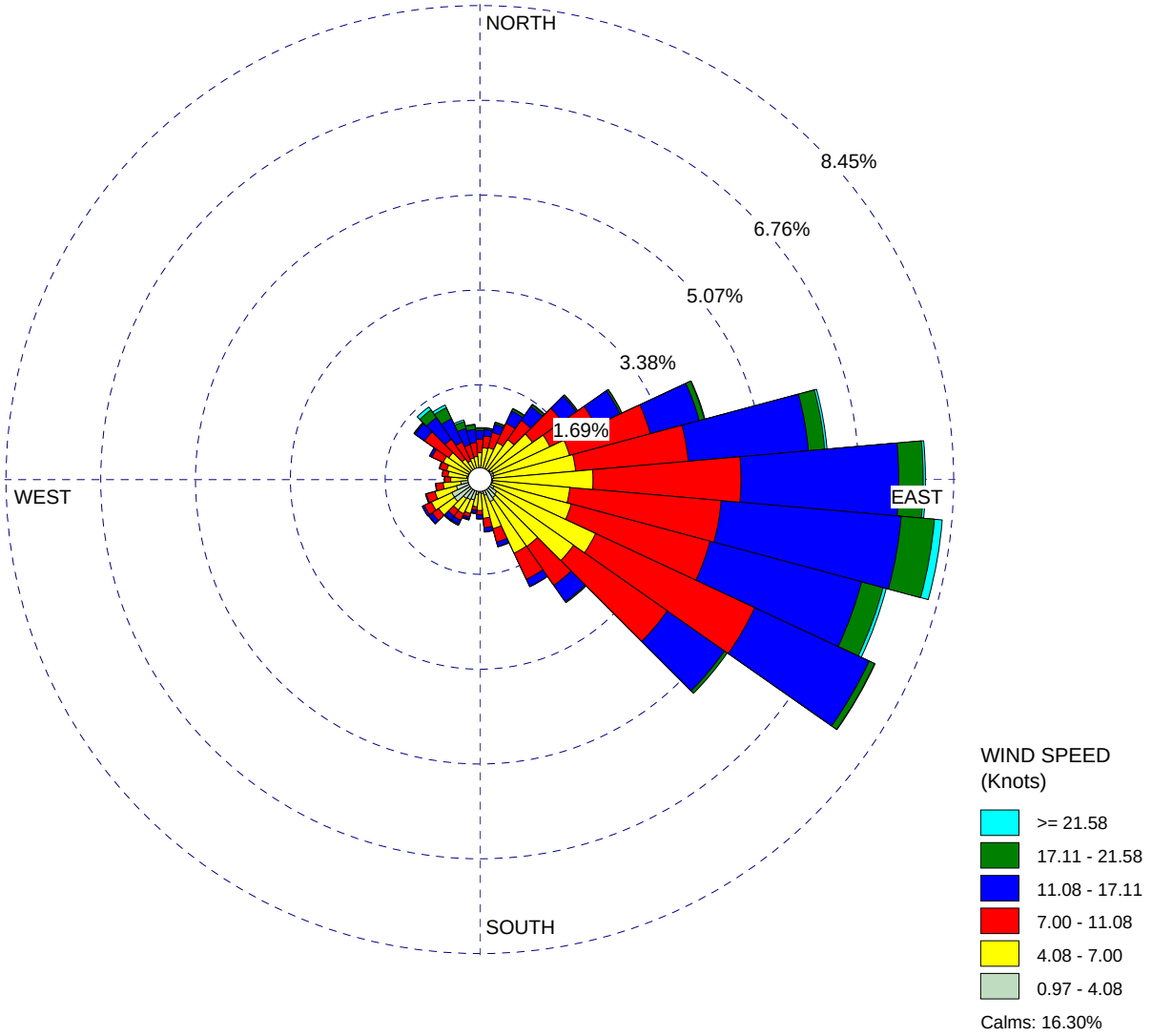
```
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            0 Warning Message(s)
A Total of         7953 Informational Message(s)

A Total of        43872 Hours Were Processed

A Total of         7152 Calm Hours Identified

A Total of          801 Missing Hours Identified (  1.83 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

WIND ROSE PLOT:

**Station #23230 - OAKLAND/WSO AP, CA**

DISPLAY:

**Wind Speed**
**Flow Vector (blowing to)**




| COMMENTS: | DATA PERIOD: | COMPANY NAME: | |
|---|---|---|---|
| | **Start Date: 1/1/2009 - 00:00**<br>**End Date: 1/2/2014 - 23:59** | MODELER: | |
| | CALM WINDS:<br>**16.30%** | TOTAL COUNT:<br>**43349 hrs.** | |
| | AVG. WIND SPEED:<br>**7.34 Knots** | DATE:<br>**10/27/2020** | PROJECT NO.: |

WRPLOT View - Lakes Environmental Software

# Appendix C. Construction Risk Calculations

# Table C1
# Residential Concentrations for Risk Calculations

| Contaminant ( a ) | Source ( b ) | | Model Output [1] ($\mu g/m^3$) ( c ) | Emission Rates [2] (g/s) ( d ) | MEIR Conc. ($\mu g/m^3$) ( e ) | Total MEIR Conc. Ann Average ($\mu g/m^3$) ( f ) |
|---|---|---|---|---|---|---|
| **Residential Receptors - Unmitigated** | | | | | | |
| DPM | 2021 | On-Site Emissions | 12.37 | 6.68E-03 | 8.26E-02 | 8.27E-02 |
| | | Truck Route | 3.50 | 1.64E-05 | 5.74E-05 | |
| | 2022 | On-Site Emissions | 12.37 | 5.86E-03 | 7.25E-02 | 7.26E-02 |
| | | Truck Route | 3.50 | 1.05E-05 | 3.66E-05 | |
| | 2023 | On-Site Emissions | 12.37 | 5.04E-03 | 6.23E-02 | 6.24E-02 |
| | | Truck Route | 3.50 | 8.07E-06 | 2.82E-05 | |
| | 2024 | On-Site Emissions | 12.37 | 5.73E-03 | 7.08E-02 | 7.09E-02 |
| | | Truck Route | 3.50 | 8.32E-06 | 2.91E-05 | |
| Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations | | | | | | |
| $PM_{2.5}$ | 2021 | On-Site Emissions | 12.37 | 6.28E-03 | 7.76E-02 | 7.77E-02 |
| | | Truck Route | 3.50 | 1.56E-05 | 5.47E-05 | |
| | 2022 | On-Site Emissions | 12.37 | 5.39E-03 | 6.67E-02 | 6.67E-02 |
| | | Truck Route | 3.50 | 9.78E-06 | 3.42E-05 | |
| | 2023 | On-Site Emissions | 12.37 | 4.64E-03 | 5.74E-02 | 5.74E-02 |
| | | Truck Route | 3.50 | 7.48E-06 | 2.62E-05 | |
| | 2024 | On-Site Emissions | 12.37 | 5.30E-03 | 6.55E-02 | 6.56E-02 |
| | | Truck Route | 3.50 | 7.67E-06 | 2.68E-05 | |
| | | | **Maximum Annual $PM_{2.5}$ Concentration** | | | **0.08** |
| **Residential Receptors - Mitigated Run: Tier 4 Interim Engines for eq. > 50 HP** | | | | | | |
| DPM | 2021 | On-Site Emissions | 12.37 | 3.08E-04 | 3.81E-03 | 3.86E-03 |
| | | Truck Route | 3.50 | 1.64E-05 | 5.74E-05 | |
| | 2022 | On-Site Emissions | 12.37 | 2.93E-04 | 3.63E-03 | 3.66E-03 |
| | | Truck Route | 3.50 | 1.05E-05 | 3.66E-05 | |
| | 2023 | On-Site Emissions | 12.37 | 2.93E-04 | 3.63E-03 | 3.65E-03 |
| | | Truck Route | 3.50 | 8.07E-06 | 2.82E-05 | |
| | 2024 | On-Site Emissions | 12.37 | 5.53E-04 | 6.84E-03 | 6.87E-03 |
| | | Truck Route | 3.50 | 8.32E-06 | 2.91E-05 | |
| Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations | | | | | | |
| $PM_{2.5}$ | 2021 | On-Site Emissions | 12.37 | 3.08E-04 | 3.81E-03 | 3.86E-03 |
| | | Truck Route | 3.50 | 1.56E-05 | 5.47E-05 | |
| | 2022 | On-Site Emissions | 12.37 | 2.93E-04 | 3.63E-03 | 3.66E-03 |
| | | Truck Route | 3.50 | 9.78E-06 | 3.42E-05 | |
| | 2023 | On-Site Emissions | 12.37 | 2.93E-04 | 3.63E-03 | 3.65E-03 |
| | | Truck Route | 3.50 | 7.48E-06 | 2.62E-05 | |
| | 2024 | On-Site Emissions | 12.37 | 5.53E-04 | 6.84E-03 | 6.87E-03 |
| | | Truck Route | 3.50 | 7.67E-06 | 2.68E-05 | |
| | | | **Maximum Annual $PM_{2.5}$ Concentration** | | | **0.007** |

Maximum Exposed Individual Resident (MEIR) UTM coordinates: 564507.89E, 4192022.30N

[1] Model Output at the MEIR based on unit emission rates for sources (1 g/s).

[2] Emission Rates from Emission Rate Calculations (Appendix A - Construction Emissions).

# Table C2
# Residential Health Risk Calculations

| Source | | MEIR | Weight | Contaminant | | | Dose (by age bin) | | | Carcinogenic Risks (by age bin) | | | **Total Cancer Risk** | **Chronic Hazards [3]** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Conc. | Fraction | | URF | CPF | 3rd Trimester | 0 < 2 years | 0 < 9 years | 3rd Trimester | 0 < 2 years | 0 < 9 years | | REL | RESP |
| | | ($\mu g/m^3$) | | | $(\mu g/m^3)^{-1}$ | $(mg/kg/day)^{-1}$ | (mg/kg-day) | (mg/kg-day) | (mg/kg-day) | per million | per million | per million | per million | ($\mu g/m^3$) | |
| ( a ) | | ( b ) | ( c ) | ( d ) | ( e ) | ( f ) | ( g ) | ( h ) | ( i ) | ( j ) | ( k ) | ( l ) | ( m ) | ( n ) | ( o ) |
| **Residential Receptors - Unmitigated** | | | | | | | | | | | | | | | |
| 2021 | On & Off-Site Emissions | 8.27E-02 | 1.00E+00 | DPM | 3.0E-04 | 1.1E+00 | 2.86E-05 | 8.64E-05 | | 9.13E-01 | 9.61E-01 | | 1.9 | 5.0E+00 | 1.65E-02 |
| 2022 | | 7.26E-02 | | | | | | 7.58E-05 | | | 9.67E+00 | | 9.7 | | 1.45E-02 |
| 2023 | | 6.24E-02 | | | | | | 6.52E-05 | 5.15E-05 | | 7.59E+00 | 1.45E-01 | 7.7 | | 1.25E-02 |
| 2024 | | 7.09E-02 | | | | | | | 5.85E-05 | | | 9.48E-01 | 0.9 | | 1.42E-02 |
| | | | | | | | | | | | | **Total** | **20.2** | | **0.058** |
| **Residential Receptors - Mitigated Run: Tier 4 Interim Engines for eq. > 50 HP** | | | | | | | | | | | | | | | |
| 2021 | On & Off-Site Emissions | 3.86E-03 | 1.00E+00 | DPM | 3.0E-04 | 1.1E+00 | 1.34E-06 | 4.04E-06 | | 4.26E-02 | 4.49E-02 | | 0.1 | 5.0E+00 | 7.73E-04 |
| 2022 | | 3.66E-03 | | | | | | 3.83E-06 | | | 4.88E-01 | | 0.5 | | 7.32E-04 |
| 2023 | | 3.65E-03 | | | | | | 3.82E-06 | 3.02E-06 | | 4.45E-01 | 8.52E-03 | 0.5 | | 7.31E-04 |
| 2024 | | 6.87E-03 | | | | | | | 5.67E-06 | | | 9.19E-02 | 0.1 | | 1.37E-03 |
| | | | | | | | | | | | | **Total** | **1.1** | | **0.004** |

Maximum Exposed Individual Resident (MEIR) UTM coordinates: 564507.89E, 4192022.30N

| | | 3rd Trimester | 0 < 2 years | 2 < 9 years |
|---|---|---|---|---|
| | OEHHA age bin | 3rd Trimester | 0 < 2 years | 2 < 9 years |
| | exposure year(s) | 2021 | 2022-2023 | 2024 |
| Dose Exposure Factors: | exposure frequency (days/year) | 350 | 350 | 350 |
| | inhalation rate (L/kg-day) [1] | 361 | 1090 | 861 |
| | inhalation absorption factor | 1 | 1 | 1 |
| | conversion factor (mg/µg; $m^3$/L) | 1.0E-06 | 1.0E-06 | 1.0E-06 |
| Risk Calculation Factors: | age sensitivity factor | 10 | 10 | 3 |
| | averaging time (years) | 70 | 70 | 70 |
| | per million | 1.0E+06 | 1.0E+06 | 1.0E+06 |
| | fraction of time at home | 0.85 | 0.85 | 0.72 |

| exposure durations per age bin | | | exposure durations (year) | | |
|---|---|---|---|---|---|
| | Construction Year | Risk Scalar [2] | 3rd Trimester | 0 < 2 years | 0 < 9 years |
| | 2021 | 0.34 | 0.25 | 0.09 | |
| | 2022 | 1.00 | | 1.00 | |
| | 2023 | 1.00 | | 0.91 | 0.09 |
| | 2024 | 0.50 | | | 0.50 |
| | Total | 2.84 | 0.25 | 2.00 | 0.59 |

[1] Inhalation rate taken as the 95th percentile breathing rates (OEHHA, 2015).

[2] Risk scalar determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App A - Construction Emissions).

[3] Chronic Hazards for DPM using the chronic reference exposure level (REL) for the Respiratory Toxicological Endpoint.

# Appendix D3
# Housing Project #2 (People's Park)
# Health Risk Assessment

# 1. Health Risk Assessment

## 1.1 CONSTRUCTION HEALTH RISK ASSESSMENT

The University of California Berkeley (UC Berkeley or the university) proposes to develop Long Range Development Plan (LRDP) Update and Housing Projects #1 and #2 in the City of Berkeley. This health risk assessment focuses on impacts from Housing Project #2. The Housing Project #2 site is the 2.80-acre site currently known as People's Park bounded by Haste Street to the north, Bowditch Street to the east, Dwight Way to the south, and retail commercial buildings that front Telegraph Avenue to the west in the City of Berkeley, Alameda County, California. Housing Project #2 would involve demolition and debris hauling, site preparation, grading and soil haul, trenching, and construction of two buildings. The following provides the background methodology used for the construction health risk assessment for Housing Project #2.

The latest version of the Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines requires projects to evaluate the impacts of construction activities on sensitive receptors (BAAQMD, 2017). Project construction is anticipated to take place starting at the beginning of April 2023 and be completed by October 2024 (approximately 333 workdays). The closest sensitive receptor to Housing Project #2 is the multifamily building along the western project site boundary. Other nearby sensitive receptors include the residential homes south of the project site along Dwight Way and the Maximino Martinez Commons building north of the project site along Haste Street. Other sensitive receptors within 1,000 feet of the site are the students at the Berkeley Rose Waldorf School south of the project site along Hillegass Avenue and the Cornerstone Children's Center. The BAAQMD has developed *Screening Tables for Air Toxics Evaluation During Construction* (2017) that evaluate construction-related health risks associated with residential, commercial, and industrial projects. According to the screening tables, the residences are closer than the distance of 98 meters (323 feet) that would screen out potential health risks and, therefore, could be potentially impacted from the proposed construction activities. As a result, a site-specific construction health risk assessment (HRA) has been prepared for Housing Project #2. This HRA considers the health impact to off-site sensitive receptors (children at the nearby residences) from construction emissions at the project site, including diesel equipment exhaust (diesel particulate matter or DPM) and particulate matter less than 2.5 microns ($PM_{2.5}$).

It should be noted that these health impacts are based on conservative (i.e., health protective) assumptions. The United States Environmental Protection Agency (USEPA, 2005) and the Office of Environmental Health Hazard Assessment (OEHHA, 2015) note that conservative assumptions used in a risk assessment are intended to ensure that the estimated risks do not underestimate the actual risks. Therefore, the estimated risks may not necessarily represent actual risks experienced by populations at or near a site. The use of conservative assumptions tends to produce upper-bound estimates of exposure and thus risk.

For residential-based receptors, the following conservative assumptions were used:

- It was assumed that maximum-exposed off-site residential receptors (both children and adults) stood outdoors and are subject to DPM at their residence for 8 hours per day, and approximately 260 construction days per year. In reality, California residents typically will spend on average 2 hours per day outdoors at their residences (USEPA, 2011). This would result in lower exposures to construction related DPM emissions and lower estimated risk values.

- The calculated risk for infants from third trimester to age 2 is multiplied by a factor of 10 to account for early life exposure and uncertainty in child versus adult exposure impacts (OEHHA, 2015).

## 1.2 METHODOLOGY AND SIGNIFICANCE THRESHOLDS

For this HRA, the BAAQMD significance thresholds were deemed to be appropriate and the thresholds that were used for this project are shown below:

- Excess cancer risk of more than 10 in a million
- Non-cancer hazard index (chronic or acute) greater than 1.0
- Incremental increase in average annual $PM_{2.5}$ concentration of greater than 0.3 $\mu g/m^3$

The methodology used in this HRA is consistent with the following BAAQMD and the OEHHA guidance documents:

- BAAQMD, 2017. *California Environmental Quality Act (CEQA) Air Quality Guidelines*. May 2017.
- BAAQMD, 2016. *Planning Healthy Places*. May 2016.
- BAAQMD, 2010. *Screening Tables for Air Toxics Evaluation During Construction*. May 2010.
- BAAQMD, 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. Version 3.0. May 2012.
- OEHHA. 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments*. February, 2015.

Potential exposures to DPM and $PM_{2.5}$ from proposed project construction were evaluated for off-site sensitive receptors in close proximity to the site. Pollutant concentrations were estimated using an air dispersion model, and excess lifetime cancer risks and chronic non-cancer hazard indexes were calculated. These risks were then compared to the significance thresholds adopted for this HRA.

## 1.3 CONSTRUCTION EMISSIONS

Construction emissions were calculated as average daily emissions in pounds per day, using the proposed construction schedule and the latest version of California Emissions Estimation Model, known as CalEEMod Version 2016.3.2.25 (CAPCOA, 2017). DPM emissions were based on the CalEEMod construction runs, using annual exhaust $PM_{10}$ construction emissions presented in pounds (lbs) per day. The $PM_{2.5}$ emissions were taken from the CalEEMod output for exhaust $PM_{2.5}$ also presented in lbs per day.

The project was assumed to take place over 18 months (333 workdays) from beginning of April 2023 and be completed by October 2024. The average daily emission rates from construction equipment used during Housing Project #2 were determined by dividing the annual average emissions for each construction year by

the number of construction days per year for each calendar year of construction (i.e., 2023 and 2024). The off-site hauling emission rates were adjusted to evaluate localized emissions from the 0.64-mile haul route within 1,000 feet of the project site. The CalEEMod construction emissions output and emission rate calculations are provided in Appendix A of the HRA.

## 1.4 DISPERSION MODELING

Air quality modeling was performed using the AERMOD atmospheric dispersion model to assess the impact of emitted compounds on sensitive receptors near the project. The model is a steady state Gaussian plume model and is an approved model by BAAQMD for estimating ground level impacts from point and fugitive sources in simple and complex terrain. The on-site construction emissions for the project were modeled as poly-area sources. The off-site mobile sources were modeled as adjacent line volume sources. The model requires additional input parameters, including chemical emission data and local meteorology. Inputs for the construction emission rates are those described in Section 1.3. Meteorological data obtained from the California Air Resources Board (CARB) for the nearest representative meteorological station (Metro Oakland International Airport) with the five latest available years (2009 to 2013) of record were used to represent local weather conditions and prevailing winds (CARB, 2020).

The modeling analysis also considered the spatial distribution and elevation of each emitting source in relation to the sensitive receptors. To accommodate the model's Cartesian grid format, direction-dependent calculations were obtained by identifying the Universal Transverse Mercator (UTM) coordinates for each source location. In addition, digital elevation model (DEM) data for the area were obtained and included in the model runs to account for complex terrain. An emission release height of 4.15 meters was used as representative of the stack exhaust height for off-road construction equipment and diesel truck traffic, and an initial vertical dispersion parameter of 1.93 m was used, per CARB guidance (2000).

To determine contaminant impacts during construction hours, the model's Season-Hour-Day (HRDOW) scalar option was invoked to predict flagpole-level concentrations (1.5 m for ground-floor receptors, 6.1 m for 2$^{nd}$-floor, and 9.1 m for 3$^{rd}$ floor) for construction emissions generated between the hours of 7:00 AM and 4:00 PM with a 1-hour lunch break. In addition, a scalar factor was applied to the risk calculations to account for the number of days residents and student are exposed to construction emissions per year.

A unit emission rate of 1 gram per second was used for all modeling runs. The unit emission rates were proportioned over the poly-area sources for on-site construction emissions and divided between the volume sources for off-site hauling emissions. The maximum modeled concentrations from the output files were then multiplied by the emission rates calculated in Appendix A to obtain the maximum flagpole-level concentrations at the off-site maximum exposed individual resident (MEIR). The MEIR is the multifamily residence south of the site along Dwight Way. The maximum exposed receptor (MER) for the Cornerstone Children's Center is situated in the northeastern corner of the facility while the MER for the Berkeley Rose Waldorf School is situated in the northwestern corner of the school. In general, the MEIR and MER locations are the receptor location associated with the maximum predicted AERMOD concentrations from the on-site emission source. The calculated on-site emission rates are approximately 3 to 4 orders of magnitude higher than the calculated off-site emission rates (see Appendix A). Therefore, the maximum concentrations associated with the on-site emission sources produce the highest overall ground-level MEIR and MER concentrations and, consequently, highest calculated health risks.

The air dispersion model output for the emission sources is presented in Appendix B. The model output DPM and $PM_{2.5}$ concentrations from the construction emission sources are provided in Appendix C.

## 1.5 RISK CHARACTERIZATION

### 1.5.1 Carcinogenic Chemical Risk

A threshold of ten in a million ($10x10^{-6}$) has been established as a level posing no significant risk for exposures to carcinogens. Health risks associated with exposure to carcinogenic compounds can be defined in terms of the probability of developing cancer as a result of exposure to a chemical at a given concentration. The cancer risk probability is determined by multiplying the chemical's annual concentration by its cancer potency factor (CPF), a measure of the carcinogenic potential of a chemical when a dose is received through the inhalation pathway. It is an upper-limit estimate of the probability of contracting cancer as a result of continuous exposure to an ambient concentration of one microgram per cubic meter ($\mu g/m^3$) over a lifetime of 70 years.

Recent guidance from OEHHA recommends a refinement to the standard point estimate approach with the use of age-specific breathing rates and age sensitivity factors (ASFs) to assess risk for susceptible subpopulations such as children. For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify dose for each age group. Once determined, contaminant dose is multiplied by the cancer potency factor in units of inverse dose expressed in milligrams per kilogram per day $(mg/kg/day)^{-1}$ to derive the cancer risk estimate. Therefore, to accommodate the unique exposures associated with the sensitive receptors, the following dose algorithm was used.

$$\mathrm{Dose}_{\mathrm{AIR,per\ age\ group}} = (\mathrm{C_{air}} \times \mathrm{EF} \times [\frac{\mathrm{BR}}{\mathrm{BW}}] \times \mathrm{A} \times \mathrm{CF})$$

Where:

| | | |
|---|---|---|
| $\mathrm{Dose_{AIR}}$ | = | dose by inhalation (mg/kg-day), per age group |
| $\mathrm{C_{air}}$ | = | concentration of contaminant in air ($\mu g/m^3$) |
| EF | = | exposure frequency (number of days/365 days) |
| BR/BW | = | daily breathing rate normalized to body weight (L/kg-day) |
| A | = | inhalation absorption factor (default = 1) |
| CF | = | conversion factor ($1x10^{-6}$, µg to mg, L to $m^3$) |

The inhalation absorption factor (A) is a unitless factor that is only used if the cancer potency factor included a correction for absorption across the lung. The default value of 1 was used for this assessment. For residential receptors, the exposure frequency (EF) of 0.96 is used to represent 350 days per year to allow for a two week period away from home each year (OEHHA, 2015). For student receptors at the Cornerstone Children's Center, which is a year-round school for infants, toddlers, and preschool-aged children, an EF of 0.68 is used to represent 250 days per year for students (OEHHA, 2004). For student receptors at the Berkeley Rose Waldorf School, which is operates as a nursery through grade 8 school on a traditional academic calendar, an EF of 0.49 is used to represent 180 days per year for students (OEHHA, 2004).

For construction analysis, the exposure duration spans the length of construction (e.g., 333 workdays). As the length of construction is less than 2 years, the third trimester and 0-2 age bins apply to the construction

analysis for the off-site residential receptors. For residential receptors, the 95th percentile daily breathing rates (BR/BW), exposure duration (ED), age sensitivity factors (ASFs), and fraction of time at home (FAH) for the various age groups are provided herein:

| Age Groups | BR/BW (L/kg-day) | ED | ASF | FAH |
|---|---|---|---|---|
| Third trimester | 361 | 0.25 | 10 | 0.85 |
| 0-2 age group | 1,090 | 1.03 | 10 | 0.85 |

For students at the Cornerstone Children's Center, the 95th percentile 8-hour breathing rates, ED, and ASF for the 0 to 2-year-old age group is provided herein:

| Age Groups | BR/BW (L/kg-day) | ED | ASF |
|---|---|---|---|
| 0-2 age group | 1,090 | 1.28 | 10 |

For students at the Berkeley Rose Waldorf School, the 95th percentile 8-hour breathing rates (moderate intensity activity), ED, and ASF for the 2 to 16-year-old age group is provided herein:

| Age Groups | BR/BW (L/kg-day) | ED | ASF |
|---|---|---|---|
| 2–16 age group | 520 | 1.28 | 3 |

To calculate the overall cancer risk, the risk for each appropriate age group is calculated per the following equation:

$$\text{Cancer Risk}_{\text{AIR}} = \text{Dose}_{\text{AIR}} \times \text{CPF} \times \text{ASF} \times \text{FAH} \times \frac{\text{ED}}{AT}$$

Where:

| | | |
|---|---|---|
| $\text{Dose}_{\text{AIR}}$ | = | dose by inhalation (mg/kg-day), per age group |
| CPF | = | cancer potency factor, chemical-specific $(\text{mg/kg-day})^{-1}$ |
| ASF | = | age sensitivity factor, per age group |
| FAH | = | fraction of time at home, per age group (for residential receptors only) |
| ED | = | exposure duration (years) |
| AT | = | averaging time period over which exposure duration is averaged (70 years) |

The CPFs used in the assessment were obtained from OEHHA guidance. The excess lifetime cancer risks during the construction period to the maximally exposed resident and students were calculated based on the factors provided above. The cancer risks for each age group are summed to estimate the total cancer risk for each toxic chemical species. The final step converts the cancer risk in scientific notation to a whole number that expresses the cancer risk in "chances per million" by multiplying the cancer risk by a factor of $1 \times 10^6$ (i.e. 1 million).

The calculated results are provided in Appendix C.

### 1.5.2 Non-Carcinogenic Hazards

An evaluation was also conducted of the potential non-cancer effects of chronic chemical exposures. Adverse health effects are evaluated by comparing the annual receptor level (flagpole) concentration of each chemical compound with the appropriate reference exposure limit (REL). Available RELs promulgated by OEHHA were considered in the assessment.

The hazard index approach was used to quantify non-carcinogenic impacts. The hazard index assumes that chronic sub-threshold exposures adversely affect a specific organ or organ system (toxicological endpoint). Target organs presented in regulatory guidance were used for each discrete chemical exposure. To calculate the hazard index, each chemical concentration or dose is divided by the appropriate toxicity value. This ratio is summed for compounds affecting the same toxicological endpoint. A health hazard is presumed to exist where the total equals or exceeds one.

The chronic hazard analysis for DPM is provided in Appendix C. The calculations contain the relevant exposure concentrations and corresponding reference dose values used in the evaluation of non-carcinogenic exposures.

### 1.5.3 Criteria Pollutants

The BAAQMD incorporated $PM_{2.5}$ into the District's CEQA significance thresholds due to recent studies that show adverse health impacts from exposure to this pollutant. An incremental increase of greater than 0.3 $\mu g/m^3$ for the annual average $PM_{2.5}$ concentration is considered to be a significant impact.

## 1.6 CONSTRUCTION HRA RESULTS

The calculated results are provided in Appendix C and the results are summarized in Table 1.

TABLE 1. CONSTRUCTION RISK SUMMARY - UNMITIGATED

| Receptor | Cancer Risk (per million) | Chronic Hazards | $PM_{2.5}$ ($\mu g/m^3$) |
|---|---|---|---|
| Maximum Exposed Individual Resident (MEIR) | 12.3 | 0.03 | 0.11 |
| Maximum Exposed Sensitive Receptor – Cornerstone Children's Center (Day Care Student) | 0.36 | 0.01 | 0.003 |
| Maximum Exposed Sensitive Receptor – Berkeley Rose Waldorf School (Student) | 1.4 | 0.3 | 0.12 |
| BAAQMD Threshold | 10 | 1.0 | 0.30 |
| Exceeds Threshold? | Yes | No | No |

Note: Cancer risk calculated using 2015 OEHHA HRA guidance. Modeling does not include Mitigation Measure AIR-2.1, which requires use of Tier 4 equipment for engines 50 horsepower and higher.

Cancer risk for the MEIR from project-related construction emissions was calculated to be 12.3 in a million, which would exceed the 10 in a million significance threshold. In accordance with the latest 2015 OEHHA guidance, the calculated total cancer risk conservatively assumes that the risk for the MEIR consists of a pregnant woman in the third trimester that subsequently gives birth to an infant during the approximately 18-month construction period; therefore, all calculated risk values were multiplied by a factor of 10. In addition, it was conservatively assumed that the residents were outdoors 8 hours a day and exposed to all of the daily construction emissions. The cancer risks for the maximum exposed sensitive receptors at the Cornerstone Children's Center and Berkeley Rose Waldorf School would not exceed 10 per million.

For non-carcinogenic effects, the chronic hazard index identified for each toxicological endpoint totaled less than one for all the off-site sensitive receptors. Therefore, chronic non-carcinogenic hazards are less than significant. Additionally, the maximum annual $PM_{2.5}$ concentrations would not exceed the BAAQMD significance threshold of 0.3 micrograms per cubic meter ($\mu g/m^3$) for all the off-site sensitive receptors.

However, Mitigation Measure AIR-2.1 from the LRDP Update Draft Environmental Impact Report (DEIR) requires Tier 4 equipment for engines 50 horsepower and higher:

> **Mitigation Measure AIR-2.1:** UC Berkeley shall use equipment that meets the United States Environmental Protection Agency Tier 4 emissions standards or higher for off-road diesel-powered construction equipment with more than 50 horsepower, unless it can be demonstrated to UC Berkeley that such equipment is not commercially available. For purposes of this mitigation measure, "commercially available" shall mean the availability of Tier 4 engines similar to the availability for other large-scale construction projects in the city occurring at the same time and taking into consideration factors such as (i) potential significant delays to critical-path timing of construction and (ii) geographic proximity to the project site of Tier 4 Final equipment. Where such equipment is not commercially available, as demonstrated by the construction contractor, Tier 3 equipment shall

be used. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Tier 4 interim emissions standard for a similarly sized engine, as defined by the California Air Resources Board's regulations. The requirement to use Tier 4 interim equipment or higher for engines over 50 horsepower shall be identified in construction bids.

- Prior to construction, the project engineer shall ensure that all demolition and grading plans clearly show the requirement for United States Environmental Protection Agency Tier 4 interim or higher emissions standards for construction equipment over 50 horsepower.
- During construction, the construction contractor shall maintain a list of all operating equipment in use on the construction site for verification by UC Berkeley.
- The construction equipment list shall state the makes, models, and numbers of construction equipment on-site.
- To the extent that equipment is available and cost-effective, contractors shall use electric, hybrid, or alternate-fueled off-road construction equipment.

Mitigation Measure AIR-2.1 would reduce the project's localized construction emissions, as shown in Table 2. The results indicate that, with mitigation, cancer risk would be less than the BAAQMD's significance thresholds for residential-based receptors. Therefore, the project would not expose off-site sensitive receptors to substantial concentrations of air pollutant emissions during construction and impacts would be *less than significant* with mitigation.

TABLE 2 CONSTRUCTION RISK SUMMARY – MITIGATED

| Receptor | Cancer Risk (per million) | Chronic Hazards | $PM_{2.5}$ ($\mu g/m^3$)[a] |
|---|---|---|---|
| Maximum Exposed Individual Resident (MEIR) | 5.2 | 0.01 | 0.04 |
| BAAQMD Threshold | 10 | 1.0 | 0.3 |
| Exceeds Threshold? | No | No | No |

Modeling includes Mitigation Measure AIR-2.1, which requires use of Tier 4 equipment for engines 50 horsepower and higher. For purposes of this analysis, the Tier 4 Interim requirement is applied only to equipment anticipated for the building construction phase.
Note: Cancer risk calculated using 2015 OEHHA HRA guidance.

# 2. References


Bay Area Air Quality Management District. 2017. *California Environmental Quality Act Air Quality Guidelines.*

———. 2016. *Planning Healthy Places.* Dated May 2016.

———. 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards.* Version 3.0. Dated May 2012.

———. 2010. Screening Tables for Air Toxics Evaluation During Construction. Version 1.0. Dated May 2010.

California Air Pollution Control Officers Association (CAPCOA). 2017. California Emissions Estimator Model (CalEEMod). Version 2016.3.2. Prepared by: BREEZE Software, A Division of Trinity Consultants in collaboration with South Coast Air Quality Management District and the California Air Districts.

California Air Resources Board (CARB). 2020. *Meteorological Files.* https://ww2.arb.ca.gov/resources/documents/harp-aermod-meteorological-files

———. 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.*

Office of Environmental Health Hazard Assessment (OEHHA). 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments.* Dated February 2015.

———. 2004. *Guidance for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(f): Guidance for Assessing Exposures and Health Risks at Existing and Proposed School Sites.* Dated February 2004.

United States Environmental Protection Agency (USEPA). 2011. *Exposure Factors Handbook 2011 Edition (Final).* EPA/600/R-09/052F, 2011.

_____. 2005. *Guideline on Air Quality Models* (Revised). EPA-450/2-78-027R.

# Appendix A. Emission Rate Calculations

**Construction Emissions - DPM and PM2.5**
**Input to Risk Tables**

## Average Daily Emissions and Emission Rates: Unmitigated Scenario

**Onsite Construction PM10 Exhaust Emissions[1]**

| Year | Average Daily Emissions (lbs/day) | Average Daily Emissions (lbs/hr) | Emission Rate (g/s) |
|---|---|---|---|
| 2023 | 0.65 | 8.16E-02 | 1.03E-02 |
| 2024 | 0.30 | 3.80E-02 | 4.79E-03 |

**Onsite Construction PM2.5 Exhaust Emissions[2]**

| Average Daily Emissions (lbs/day) | Average Daily Emissions (lbs/hr) | Emission Rate (g/s) |
|---|---|---|
| 0.62 | 7.80E-02 | 9.83E-03 |
| 0.29 | 3.60E-02 | 4.54E-03 |

**Offsite Construction PM10 Exhaust Emissions[1]**

| Year | Average Daily Emissions (lbs/day) | Hauling Emissions w/in 1,000ft (lbs/day) [3] | Emission Rate (lbs/hr) | Emission Rate (g/s) |
|---|---|---|---|---|
| 2023 | 0.0153 | 4.86E-04 | 6.08E-05 | 7.66E-06 |
| 2024 | 0.0051 | 1.61E-04 | 2.02E-05 | 2.54E-06 |

**Offsite Construction PM2.5 Exhaust Emissions[2]**

| Average Daily Emissions (lbs/day) | Hauling Emissions w/in 1,000ft (lbs/day) [3] | Emission Rate (lbs/hr) | Emission Rate (g/s) |
|---|---|---|---|
| 0.0143 | 4.54E-04 | 5.67E-05 | 7.14E-06 |
| 0.0048 | 1.52E-04 | 1.90E-05 | 2.40E-06 |

Note: Emissions evenly distributed over 85 modeled volume sources.

| | | |
|---|---|---|
| Hauling Length (miles) | 20 | miles |
| Haul Length within 1,000 ft of Site (mile) [3] | 0.64 | miles |
| Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks) [4] | 8 | hours |

| Year | Workdays | Risk Scalar [5] |
|---|---|---|
| 2023 | 195 | 0.75 |
| 2024 | 138 | 0.53 |

[1] DPM emissions taken as $PM_{10}$ exhaust emissions from CalEEMod average daily emissions.

[2] $PM_{2.5}$ emissions taken as $PM_{2.5}$ exhaust emissions from CalEEMod average daily emissions.

[3] Emissions from CalEEMod offsite average daily emissions, which is based on proportioned haul truck trip distances, are adjusted to evaluate emissions from the 0.64-mile route within 1,000 of the project site.

[4] Work hours applied in By Hour/Day (HRDOW) variable emissions module in air dispersion model (see App B - Air Dispersion Model Output).

[5] Risk scalars determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App C - Risk Calculations).

**Construction Emissions - DPM and PM2.5**
**Input to Risk Tables**
**With Mitigation - Tier 4 Interim Engines for Eq. > 50 hp**

## Average Daily Emissions and Emission Rates: Mitigated Scenario

Tier 4 Interim Engines for Equipment > 50 HP

**Onsite Construction PM10 Exhaust Emissions[1]**

| Year | Average Daily Emissions (lbs/day) | Average Daily Emissions (lbs/hr) | Emission Rate (g/s) |
|---|---|---|---|
| 2023 | 0.23 | 2.89E-02 | 3.64E-03 |
| 2024 | 0.17 | 2.16E-02 | 2.72E-03 |

**Onsite Construction PM2.5 Exhaust Emissions[2]**

| Average Daily Emissions (lbs/day) | Average Daily Emissions (lbs/hr) | Emission Rate (g/s) |
|---|---|---|
| 0.23 | 2.85E-02 | 3.59E-03 |
| 0.17 | 2.07E-02 | 2.60E-03 |

**Offsite Construction PM10 Exhaust Emissions[1]**

| Year | Average Daily Emissions (lbs/day) | Hauling Emissions w/in 1,000ft (lbs/day)[3] | Emission Rate (lbs/hr) | Emission Rate (g/s) |
|---|---|---|---|---|
| 2023 | 0.0153 | 4.86E-04 | 6.08E-05 | 7.66E-06 |
| 2024 | 0.0051 | 1.61E-04 | 2.02E-05 | 2.54E-06 |

**Offsite Construction PM2.5 Exhaust Emissions[2]**

| Average Daily Emissions (lbs/day) | Hauling Emissions w/in 1,000ft (lbs/day)[3] | Emission Rate (lbs/hr) | Emission Rate (g/s) |
|---|---|---|---|
| 0.0143 | 4.54E-04 | 5.67E-05 | 7.14E-06 |
| 0.0048 | 1.52E-04 | 1.90E-05 | 2.40E-06 |

Note: Emissions evenly distributed over 85 modeled volume sources.

| | | |
|---|---|---|
| Hauling Length (miles) | 20 | miles |
| Haul Length within 1,000 ft of Site (mile)[3] | 0.64 | miles |
| Hours per work day (7:00 AM to 4:00 PM, 1-hour of breaks)[4] | 8 | hours |

| Year | Workdays | Risk Scalar[5] |
|---|---|---|
| 2023 | 195 | 0.75 |
| 2024 | 138 | 0.53 |

[1] DPM emissions taken as $PM_{10}$ exhaust emissions from CalEEMod average daily emissions.

[2] $PM_{2.5}$ emissions taken as $PM_{2.5}$ exhaust emissions from CalEEMod average daily emissions.

[3] Emissions from CalEEMod offsite average daily emissions, which is based on proportioned haul truck trip distances, are adjusted to evaluate emissions from the 0.64-mile route within 1,000 of the project site.

[4] Work hours applied in By Hour/Day (HRDOW) variable emissions module in air dispersion model (see App B - Air Dispersion Model Output).

[5] Risk scalars determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App C - Risk Calculations).

# Appendix B. Air Dispersion Model Output

```
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                     PAGE   1
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
**Model Uses NO WET DEPLETION.  WETDPLT  =  F

**Model Uses URBAN Dispersion Algorithm for the SBL for    86 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   1671000.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
        1. Stack-tip Downwash.
        2. Model Accounts for ELEVated Terrain Effects.
        3. Use Calms Processing Routine.
        4. Use Missing Data Processing Routine.
        5. No Exponential Decay.
        6. Urban Roughness Length of 1.0 Meter Assumed.

**Other Options Specified:
        CCVR_Sub - Meteorological data includes CCVR substitutions
        TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of:  OTHER

**Model Calculates PERIOD Averages Only

**This Run Includes:     86 Source(s);       2 Source Group(s); and    5455 Receptor(s)

               with:      0 POINT(s), including
                          0 POINTCAP(s) and      0 POINTHOR(s)
                and:     85 VOLUME source(s)
                and:      1 AREA type source(s)
                and:      0 LINE source(s)
                and:      0 RLINE/RLINEXT source(s)
                and:      0 OPENPIT source(s)
                and:      0 BUOYANT LINE source(s) with      0 line(s)


**Model Set To Continue RUNning After the Setup Testing.
```

```
**The AERMET Input Meteorological Data Version Date:  14134

**Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
         Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =     1.80 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =      4.3 MB of RAM.

**Input Runstream File:          aermod.inp
**Output Print File:             aermod.out

**Detailed Error/Message File:   UCB01_People.err
**File for Summary of Results:   UCB01_People.sum
```

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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                     PAGE   2
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN
```

*** VOLUME SOURCE DATA ***

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|---|---|---|---|---|---|---|---|---|---|---|
| L0000001 | 0 | 0.11765E-01 | 564966.1 | 4191071.1 | 65.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000002 | 0 | 0.11765E-01 | 564977.9 | 4191073.1 | 65.7 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000003 | 0 | 0.11765E-01 | 564989.8 | 4191075.1 | 66.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000004 | 0 | 0.11765E-01 | 565001.6 | 4191077.2 | 66.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000005 | 0 | 0.11765E-01 | 565013.4 | 4191079.2 | 66.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000006 | 0 | 0.11765E-01 | 565025.2 | 4191081.3 | 66.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000007 | 0 | 0.11765E-01 | 565037.1 | 4191083.3 | 66.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000008 | 0 | 0.11765E-01 | 565048.9 | 4191085.3 | 67.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000009 | 0 | 0.11765E-01 | 565060.7 | 4191087.4 | 67.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000010 | 0 | 0.11765E-01 | 565072.6 | 4191089.4 | 67.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000011 | 0 | 0.11765E-01 | 565084.4 | 4191091.5 | 67.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000012 | 0 | 0.11765E-01 | 565096.2 | 4191093.5 | 68.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000013 | 0 | 0.11765E-01 | 565108.0 | 4191095.5 | 68.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000014 | 0 | 0.11765E-01 | 565119.9 | 4191097.3 | 69.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000015 | 0 | 0.11765E-01 | 565131.8 | 4191099.1 | 69.7 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000016 | 0 | 0.11765E-01 | 565143.6 | 4191100.9 | 69.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000017 | 0 | 0.11765E-01 | 565155.5 | 4191102.7 | 70.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000018 | 0 | 0.11765E-01 | 565167.3 | 4191104.5 | 70.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000019 | 0 | 0.11765E-01 | 565179.2 | 4191106.3 | 70.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000020 | 0 | 0.11765E-01 | 565191.1 | 4191108.1 | 71.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000021 | 0 | 0.11765E-01 | 565202.9 | 4191110.0 | 71.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000022 | 0 | 0.11765E-01 | 565214.8 | 4191111.8 | 71.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000023 | 0 | 0.11765E-01 | 565226.7 | 4191113.6 | 72.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000024 | 0 | 0.11765E-01 | 565238.5 | 4191115.6 | 72.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000025 | 0 | 0.11765E-01 | 565250.3 | 4191117.7 | 73.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000026 | 0 | 0.11765E-01 | 565262.1 | 4191119.7 | 73.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000027 | 0 | 0.11765E-01 | 565274.0 | 4191121.8 | 74.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000028 | 0 | 0.11765E-01 | 565285.8 | 4191123.8 | 75.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000029 | 0 | 0.11765E-01 | 565297.6 | 4191125.8 | 75.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000030 | 0 | 0.11765E-01 | 565309.4 | 4191127.9 | 76.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000031 | 0 | 0.11765E-01 | 565321.3 | 4191129.9 | 77.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000032 | 0 | 0.11765E-01 | 565333.1 | 4191132.0 | 77.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000033 | 0 | 0.11765E-01 | 565344.9 | 4191134.0 | 78.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000034 | 0 | 0.11765E-01 | 565356.7 | 4191136.1 | 78.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000035 | 0 | 0.11765E-01 | 565368.6 | 4191138.1 | 78.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000036 | 0 | 0.11765E-01 | 565380.4 | 4191140.1 | 79.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000037 | 0 | 0.11765E-01 | 565392.2 | 4191142.2 | 80.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000038 | 0 | 0.11765E-01 | 565404.0 | 4191144.2 | 81.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| L0000039 | 0 | 0.11765E-01 | 565415.9 | 4191146.3 | 81.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000040 | 0 | 0.11765E-01 | 565424.3 | 4191150.6 | 82.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |



*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** VOLUME SOURCE DATA ***

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|---|---|---|---|---|---|---|---|---|---|---|
| L0000041 | 0 | 0.11765E-01 | 565422.0 | 4191162.4 | 82.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000042 | 0 | 0.11765E-01 | 565419.7 | 4191174.2 | 82.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000043 | 0 | 0.11765E-01 | 565417.3 | 4191185.9 | 82.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000044 | 0 | 0.11765E-01 | 565415.0 | 4191197.7 | 82.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000045 | 0 | 0.11765E-01 | 565412.7 | 4191209.5 | 82.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000046 | 0 | 0.11765E-01 | 565410.3 | 4191221.3 | 82.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000047 | 0 | 0.11765E-01 | 565408.0 | 4191233.0 | 82.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000048 | 0 | 0.11765E-01 | 565405.7 | 4191244.8 | 82.7 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000049 | 0 | 0.11765E-01 | 565394.4 | 4191243.5 | 82.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000050 | 0 | 0.11765E-01 | 565382.6 | 4191241.4 | 81.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000051 | 0 | 0.11765E-01 | 565370.8 | 4191239.3 | 80.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000052 | 0 | 0.11765E-01 | 565359.0 | 4191237.2 | 80.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000053 | 0 | 0.11765E-01 | 565347.1 | 4191235.1 | 79.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000054 | 0 | 0.11765E-01 | 565335.3 | 4191233.0 | 79.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000055 | 0 | 0.11765E-01 | 565323.5 | 4191230.8 | 78.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000056 | 0 | 0.11765E-01 | 565311.7 | 4191228.7 | 78.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000057 | 0 | 0.11765E-01 | 565299.9 | 4191226.6 | 77.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000058 | 0 | 0.11765E-01 | 565288.1 | 4191224.5 | 77.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000059 | 0 | 0.11765E-01 | 565276.3 | 4191222.4 | 76.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000060 | 0 | 0.11765E-01 | 565264.4 | 4191220.4 | 76.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000061 | 0 | 0.11765E-01 | 565252.6 | 4191218.5 | 75.7 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000062 | 0 | 0.11765E-01 | 565240.7 | 4191216.6 | 75.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000063 | 0 | 0.11765E-01 | 565228.9 | 4191214.7 | 74.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000064 | 0 | 0.11765E-01 | 565217.0 | 4191212.9 | 74.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000065 | 0 | 0.11765E-01 | 565205.2 | 4191211.0 | 73.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000066 | 0 | 0.11765E-01 | 565193.3 | 4191209.1 | 73.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000067 | 0 | 0.11765E-01 | 565181.5 | 4191207.2 | 73.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000068 | 0 | 0.11765E-01 | 565169.6 | 4191205.4 | 73.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000069 | 0 | 0.11765E-01 | 565157.8 | 4191203.5 | 72.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000070 | 0 | 0.11765E-01 | 565145.9 | 4191201.6 | 72.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000071 | 0 | 0.11765E-01 | 565134.1 | 4191199.7 | 72.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000072 | 0 | 0.11765E-01 | 565122.2 | 4191197.8 | 71.7 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000073 | 0 | 0.11765E-01 | 565110.4 | 4191196.0 | 71.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000074 | 0 | 0.11765E-01 | 565098.5 | 4191194.1 | 70.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000075 | 0 | 0.11765E-01 | 565086.7 | 4191192.2 | 70.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000076 | 0 | 0.11765E-01 | 565074.8 | 4191190.3 | 70.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |

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L0000077         0   0.11765E-01  565063.0 4191188.4    70.4     4.15     5.58     3.26     YES   HRDOW
L0000078         0   0.11765E-01  565051.1 4191186.6    69.9     4.15     5.58     3.26     YES   HRDOW
L0000079         0   0.11765E-01  565039.2 4191184.7    69.6     4.15     5.58     3.26     YES   HRDOW
L0000080         0   0.11765E-01  565027.4 4191182.8    69.5     4.15     5.58     3.26     YES   HRDOW
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                  ***        14:10:30
                                                                                                                   PAGE   4
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN


                                                *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                    BASE    RELEASE    INIT.    INIT.   URBAN  EMISSION RATE
  SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY       SZ     SOURCE  SCALAR VARY
    ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS) (METERS)              BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

L0000081         0   0.11765E-01  565015.5 4191180.9    69.5     4.15     5.58     3.26     YES   HRDOW
L0000082         0   0.11765E-01  565003.7 4191179.0    69.1     4.15     5.58     3.26     YES   HRDOW
L0000083         0   0.11765E-01  564991.8 4191177.2    68.6     4.15     5.58     3.26     YES   HRDOW
L0000084         0   0.11765E-01  564980.0 4191175.3    68.3     4.15     5.58     3.26     YES   HRDOW
L0000085         0   0.11765E-01  564968.1 4191173.4    68.1     4.15     5.58     3.26     YES   HRDOW


*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                  ***        14:10:30
                                                                                                                   PAGE   5
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN


                                                *** AREAPOLY SOURCE DATA ***

              NUMBER EMISSION RATE   LOCATION OF AREA  BASE     RELEASE  NUMBER      INIT.   URBAN  EMISSION RATE
  SOURCE       PART.  (GRAMS/SEC       X        Y      ELEV.    HEIGHT  OF VERTS.     SZ     SOURCE  SCALAR VARY
    ID         CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS)            (METERS)              BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

PAREA1           0   0.88358E-04  565264.2 4191212.0    75.9     4.15       4         1.93     YES   HRDOW
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                     PAGE   6
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID                                          SOURCE IDs
-----------                                          ----------

 ONSITE     PAREA1      ,

 HAUL       L0000001    , L0000002    , L0000003    , L0000004    , L0000005    , L0000006    , L0000007    , L0000008    ,

            L0000009    , L0000010    , L0000011    , L0000012    , L0000013    , L0000014    , L0000015    , L0000016    ,

            L0000017    , L0000018    , L0000019    , L0000020    , L0000021    , L0000022    , L0000023    , L0000024    ,

            L0000025    , L0000026    , L0000027    , L0000028    , L0000029    , L0000030    , L0000031    , L0000032    ,

            L0000033    , L0000034    , L0000035    , L0000036    , L0000037    , L0000038    , L0000039    , L0000040    ,

            L0000041    , L0000042    , L0000043    , L0000044    , L0000045    , L0000046    , L0000047    , L0000048    ,

            L0000049    , L0000050    , L0000051    , L0000052    , L0000053    , L0000054    , L0000055    , L0000056    ,

            L0000057    , L0000058    , L0000059    , L0000060    , L0000061    , L0000062    , L0000063    , L0000064    ,

            L0000065    , L0000066    , L0000067    , L0000068    , L0000069    , L0000070    , L0000071    , L0000072    ,

            L0000073    , L0000074    , L0000075    , L0000076    , L0000077    , L0000078    , L0000079    , L0000080    ,

            L0000081    , L0000082    , L0000083    , L0000084    , L0000085    ,
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                     PAGE   7
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** SOURCE IDs DEFINED AS URBAN SOURCES ***

 URBAN ID   URBAN POP                                  SOURCE IDs
 --------   ---------                                  ----------

             1671000.   PAREA1      , L0000001    , L0000002    , L0000003    , L0000004    , L0000005    , L0000006    ,
L0000007    ,

            L0000008    , L0000009    , L0000010    , L0000011    , L0000012    , L0000013    , L0000014    , L0000015    ,

            L0000016    , L0000017    , L0000018    , L0000019    , L0000020    , L0000021    , L0000022    , L0000023    ,

            L0000024    , L0000025    , L0000026    , L0000027    , L0000028    , L0000029    , L0000030    , L0000031    ,

            L0000032    , L0000033    , L0000034    , L0000035    , L0000036    , L0000037    , L0000038    , L0000039    ,

            L0000040    , L0000041    , L0000042    , L0000043    , L0000044    , L0000045    , L0000046    , L0000047    ,

            L0000048    , L0000049    , L0000050    , L0000051    , L0000052    , L0000053    , L0000054    , L0000055    ,

            L0000056    , L0000057    , L0000058    , L0000059    , L0000060    , L0000061    , L0000062    , L0000063    ,

            L0000064    , L0000065    , L0000066    , L0000067    , L0000068    , L0000069    , L0000070    , L0000071    ,

            L0000072    , L0000073    , L0000074    , L0000075    , L0000076    , L0000077    , L0000078    , L0000079    ,

            L0000080    , L0000081    , L0000082    , L0000083    , L0000084    , L0000085    ,
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                     PAGE   8
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = PAREA1       ; SOURCE TYPE = AREAPOLY :
 HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
   9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .0000E+00   13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .1000E+01
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                     PAGE   9
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000001 To L0000085    ; SOURCE TYPE = VOLUME   :
 HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
   9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .0000E+00   13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .1000E+01
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                     PAGE  94
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                     (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

    ( 565215.6, 4190813.6,      67.7,      67.7,       1.5);         ( 565225.6, 4190813.6,      68.1,      68.1,       1.5);
    ( 565235.6, 4190813.6,      68.4,      68.4,       1.5);         ( 565245.6, 4190813.6,      68.7,      68.7,       1.5);
    ( 565255.6, 4190813.6,      69.1,      69.1,       1.5);         ( 565265.6, 4190813.6,      69.4,      69.4,       1.5);
    ( 565275.6, 4190813.6,      69.7,      69.7,       1.5);         ( 565285.6, 4190813.6,      70.1,      70.1,       1.5);
    ( 565295.6, 4190813.6,      70.5,      70.5,       1.5);         ( 565215.6, 4190823.6,      67.7,      67.7,       1.5);
    ( 565225.6, 4190823.6,      68.1,      68.1,       1.5);         ( 565235.6, 4190823.6,      68.4,      68.4,       1.5);
    ( 565245.6, 4190823.6,      68.7,      68.7,       1.5);         ( 565255.6, 4190823.6,      69.1,      69.1,       1.5);
    ( 565265.6, 4190823.6,      69.4,      69.4,       1.5);         ( 565275.6, 4190823.6,      69.7,      69.7,       1.5);
    ( 565285.6, 4190823.6,      70.1,      70.1,       1.5);         ( 565325.6, 4190823.6,      72.0,      72.0,       1.5);
    ( 565335.6, 4190823.6,      72.3,      72.3,       1.5);         ( 565345.6, 4190823.6,      72.7,      72.7,       1.5);
    ( 565355.6, 4190823.6,      73.1,      73.1,       1.5);         ( 565365.6, 4190823.6,      73.6,      73.6,       1.5);
    ( 565375.6, 4190823.6,      74.1,      74.1,       1.5);         ( 565385.6, 4190823.6,      74.4,      74.4,       1.5);
    ( 565395.6, 4190823.6,      74.7,      74.7,       1.5);         ( 565405.6, 4190823.6,      75.1,      75.1,       1.5);
    ( 565145.6, 4190833.6,      65.4,      65.4,       1.5);         ( 565155.6, 4190833.6,      65.7,      65.7,       1.5);
    ( 565165.6, 4190833.6,      66.1,      66.1,       1.5);         ( 565175.6, 4190833.6,      66.4,      66.4,       1.5);
    ( 565185.6, 4190833.6,      66.7,      66.7,       1.5);         ( 565215.6, 4190833.6,      67.7,      67.7,       1.5);
    ( 565225.6, 4190833.6,      68.1,      68.1,       1.5);         ( 565235.6, 4190833.6,      68.4,      68.4,       1.5);
    ( 565245.6, 4190833.6,      68.7,      68.7,       1.5);         ( 565255.6, 4190833.6,      69.1,      69.1,       1.5);
    ( 565265.6, 4190833.6,      69.4,      69.4,       1.5);         ( 565275.6, 4190833.6,      69.7,      69.7,       1.5);
    ( 565285.6, 4190833.6,      70.1,      70.1,       1.5);         ( 565325.6, 4190833.6,      72.3,      72.3,       1.5);
    ( 565335.6, 4190833.6,      72.6,      72.6,       1.5);         ( 565345.6, 4190833.6,      73.0,      73.0,       1.5);
    ( 565355.6, 4190833.6,      73.3,      73.3,       1.5);         ( 565365.6, 4190833.6,      73.7,      73.7,       1.5);
    ( 565375.6, 4190833.6,      74.1,      74.1,       1.5);         ( 565385.6, 4190833.6,      74.4,      74.4,       1.5);
    ( 565395.6, 4190833.6,      74.7,      74.7,       1.5);         ( 565405.6, 4190833.6,      75.1,      75.1,       1.5);
    ( 565125.6, 4190843.6,      65.0,      65.0,       1.5);         ( 565135.6, 4190843.6,      65.3,      65.3,       1.5);
    ( 565145.6, 4190843.6,      65.6,      65.6,       1.5);         ( 565155.6, 4190843.6,      66.0,      66.0,       1.5);
    ( 565165.6, 4190843.6,      66.3,      66.3,       1.5);         ( 565175.6, 4190843.6,      66.5,      66.5,       1.5);
    ( 565185.6, 4190843.6,      66.8,      66.8,       1.5);         ( 565215.6, 4190843.6,      67.6,      67.6,       1.5);
    ( 565225.6, 4190843.6,      67.8,      67.8,       1.5);         ( 565235.6, 4190843.6,      68.3,      68.3,       1.5);
    ( 565245.6, 4190843.6,      68.7,      68.7,       1.5);         ( 565255.6, 4190843.6,      69.1,      69.1,       1.5);
    ( 565265.6, 4190843.6,      69.4,      69.4,       1.5);         ( 565275.6, 4190843.6,      69.7,      69.7,       1.5);
    ( 565285.6, 4190843.6,      70.1,      70.1,       1.5);         ( 565325.6, 4190843.6,      72.4,      72.4,       1.5);
    ( 565335.6, 4190843.6,      72.7,      72.7,       1.5);         ( 565345.6, 4190843.6,      73.1,      73.1,       1.5);
    ( 565355.6, 4190843.6,      73.4,      73.4,       1.5);         ( 565365.6, 4190843.6,      73.7,      73.7,       1.5);
    ( 565375.6, 4190843.6,      74.1,      74.1,       1.5);         ( 565385.6, 4190843.6,      74.5,      74.5,       1.5);
    ( 565395.6, 4190843.6,      74.9,      74.9,       1.5);         ( 565405.6, 4190843.6,      75.4,      75.4,       1.5);
    ( 565435.6, 4190843.6,      77.1,      77.1,       1.5);         ( 565445.6, 4190843.6,      77.4,      77.4,       1.5);
    ( 565455.6, 4190843.6,      77.7,      77.7,       1.5);         ( 565465.6, 4190843.6,      78.1,      78.1,       1.5);
    ( 565475.6, 4190843.6,      78.5,      78.5,       1.5);         ( 565485.6, 4190843.6,      78.9,      78.9,       1.5);
    ( 565495.6, 4190843.6,      79.3,      79.3,       1.5);         ( 565125.6, 4190853.6,      65.3,      65.3,       1.5);
    ( 565135.6, 4190853.6,      65.6,      65.6,       1.5);         ( 565145.6, 4190853.6,      66.0,      66.0,       1.5);
    ( 565155.6, 4190853.6,      66.3,      66.3,       1.5);         ( 565165.6, 4190853.6,      66.6,      66.6,       1.5);
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    ( 565175.6, 4190853.6,      66.8,      66.8,       1.5);         ( 565185.6, 4190853.6,      66.9,      66.9,       1.5);
    ( 565215.6, 4190853.6,      67.3,      67.3,       1.5);         ( 565225.6, 4190853.6,      67.5,      67.5,       1.5);
    ( 565235.6, 4190853.6,      68.1,      68.1,       1.5);         ( 565245.6, 4190853.6,      68.6,      68.6,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE  95
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                     (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

    ( 565255.6, 4190853.6,      69.1,      69.1,       1.5);         ( 565265.6, 4190853.6,      69.4,      69.4,       1.5);
    ( 565275.6, 4190853.6,      69.7,      69.7,       1.5);         ( 565285.6, 4190853.6,      70.1,      70.1,       1.5);
    ( 565325.6, 4190853.6,      72.4,      72.4,       1.5);         ( 565335.6, 4190853.6,      72.7,      72.7,       1.5);
    ( 565345.6, 4190853.6,      73.1,      73.1,       1.5);         ( 565355.6, 4190853.6,      73.4,      73.4,       1.5);
    ( 565365.6, 4190853.6,      73.7,      73.7,       1.5);         ( 565375.6, 4190853.6,      74.1,      74.1,       1.5);
    ( 565385.6, 4190853.6,      74.6,      74.6,       1.5);         ( 565395.6, 4190853.6,      75.2,      75.2,       1.5);
    ( 565405.6, 4190853.6,      75.7,      75.7,       1.5);         ( 565435.6, 4190853.6,      77.1,      77.1,       1.5);
    ( 565445.6, 4190853.6,      77.4,      77.4,       1.5);         ( 565455.6, 4190853.6,      77.7,      77.7,       1.5);
    ( 565465.6, 4190853.6,      78.1,      78.1,       1.5);         ( 565475.6, 4190853.6,      78.6,      78.6,       1.5);
    ( 565485.6, 4190853.6,      79.2,      79.2,       1.5);         ( 565495.6, 4190853.6,      79.6,      79.6,       1.5);
    ( 565085.6, 4190863.6,      64.4,      64.4,       1.5);         ( 565095.6, 4190863.6,      64.7,      64.7,       1.5);
    ( 565105.6, 4190863.6,      65.0,      65.0,       1.5);         ( 565115.6, 4190863.6,      65.3,      65.3,       1.5);
    ( 565125.6, 4190863.6,      65.6,      65.6,       1.5);         ( 565135.6, 4190863.6,      66.0,      66.0,       1.5);
    ( 565145.6, 4190863.6,      66.3,      66.3,       1.5);         ( 565155.6, 4190863.6,      66.6,      66.6,       1.5);
    ( 565165.6, 4190863.6,      66.9,      66.9,       1.5);         ( 565175.6, 4190863.6,      66.9,      66.9,       1.5);
    ( 565185.6, 4190863.6,      67.0,      67.0,       1.5);         ( 565225.6, 4190863.6,      67.2,      67.2,       1.5);
    ( 565235.6, 4190863.6,      67.9,      67.9,       1.5);         ( 565245.6, 4190863.6,      68.5,      68.5,       1.5);
    ( 565255.6, 4190863.6,      69.1,      69.1,       1.5);         ( 565265.6, 4190863.6,      69.4,      69.4,       1.5);
    ( 565275.6, 4190863.6,      69.7,      69.7,       1.5);         ( 565285.6, 4190863.6,      70.1,      70.1,       1.5);
    ( 565325.6, 4190863.6,      72.4,      72.4,       1.5);         ( 565335.6, 4190863.6,      72.7,      72.7,       1.5);
    ( 565345.6, 4190863.6,      73.1,      73.1,       1.5);         ( 565355.6, 4190863.6,      73.4,      73.4,       1.5);
    ( 565365.6, 4190863.6,      73.7,      73.7,       1.5);         ( 565375.6, 4190863.6,      74.1,      74.1,       1.5);
    ( 565385.6, 4190863.6,      74.8,      74.8,       1.5);         ( 565395.6, 4190863.6,      75.4,      75.4,       1.5);
    ( 565405.6, 4190863.6,      76.0,      76.0,       1.5);         ( 565435.6, 4190863.6,      77.1,      77.1,       1.5);
    ( 565445.6, 4190863.6,      77.4,      77.4,       1.5);         ( 565455.6, 4190863.6,      77.7,      77.7,       1.5);
    ( 565465.6, 4190863.6,      78.1,      78.1,       1.5);         ( 565475.6, 4190863.6,      78.8,      78.8,       1.5);
    ( 565485.6, 4190863.6,      79.4,      79.4,       1.5);         ( 565495.6, 4190863.6,      80.0,      80.0,       1.5);
    ( 565505.6, 4190863.6,      80.3,      80.3,       1.5);         ( 565515.6, 4190863.6,      80.6,      80.6,       1.5);
    ( 565085.6, 4190873.6,      64.4,      64.4,       1.5);         ( 565095.6, 4190873.6,      64.7,      64.7,       1.5);
    ( 565105.6, 4190873.6,      65.1,      65.1,       1.5);         ( 565115.6, 4190873.6,      65.4,      65.4,       1.5);
    ( 565125.6, 4190873.6,      65.7,      65.7,       1.5);         ( 565135.6, 4190873.6,      66.1,      66.1,       1.5);
    ( 565145.6, 4190873.6,      66.4,      66.4,       1.5);         ( 565155.6, 4190873.6,      66.7,      66.7,       1.5);
    ( 565165.6, 4190873.6,      67.0,      67.0,       1.5);         ( 565175.6, 4190873.6,      67.1,      67.1,       1.5);
    ( 565185.6, 4190873.6,      67.2,      67.2,       1.5);         ( 565225.6, 4190873.6,      67.4,     213.0,       1.5);
    ( 565235.6, 4190873.6,      68.0,      68.0,       1.5);         ( 565245.6, 4190873.6,      68.5,      68.5,       1.5);
    ( 565255.6, 4190873.6,      69.1,      69.1,       1.5);         ( 565265.6, 4190873.6,      69.5,      69.5,       1.5);
    ( 565275.6, 4190873.6,      69.9,      69.9,       1.5);         ( 565285.6, 4190873.6,      70.4,      70.4,       1.5);
    ( 565315.6, 4190873.6,      72.1,      72.1,       1.5);         ( 565325.6, 4190873.6,      72.4,      72.4,       1.5);
    ( 565335.6, 4190873.6,      72.7,      72.7,       1.5);         ( 565345.6, 4190873.6,      73.1,      73.1,       1.5);
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    ( 565355.6, 4190873.6,      73.5,      73.5,       1.5);         ( 565365.6, 4190873.6,      73.9,      73.9,       1.5);
    ( 565375.6, 4190873.6,      74.4,      74.4,       1.5);         ( 565385.6, 4190873.6,      75.0,      75.0,       1.5);
    ( 565395.6, 4190873.6,      75.5,      75.5,       1.5);         ( 565405.6, 4190873.6,      76.1,      76.1,       1.5);
    ( 565435.6, 4190873.6,      77.3,      77.3,       1.5);         ( 565445.6, 4190873.6,      77.6,      77.6,       1.5);
    ( 565455.6, 4190873.6,      78.0,      78.0,       1.5);         ( 565465.6, 4190873.6,      78.4,      78.4,       1.5);
    ( 565475.6, 4190873.6,      79.0,      79.0,       1.5);         ( 565485.6, 4190873.6,      79.5,      79.5,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE  96
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                      (METERS)

    ( 565495.6, 4190873.6,      80.1,      80.1,       1.5);         ( 565505.6, 4190873.6,      80.4,      80.4,       1.5);
    ( 565515.6, 4190873.6,      80.7,      80.7,       1.5);         ( 565145.6, 4190883.6,      66.4,      66.4,       1.5);
    ( 565155.6, 4190883.6,      66.7,      66.7,       1.5);         ( 565165.6, 4190883.6,      67.0,      67.0,       1.5);
    ( 565175.6, 4190883.6,      67.2,      67.2,       1.5);         ( 565185.6, 4190883.6,      67.4,      67.4,       1.5);
    ( 565225.6, 4190883.6,      67.7,     213.0,       1.5);         ( 565235.6, 4190883.6,      68.1,     213.0,       1.5);
    ( 565245.6, 4190883.6,      68.6,     213.0,       1.5);         ( 565255.6, 4190883.6,      69.1,     213.0,       1.5);
    ( 565265.6, 4190883.6,      69.6,     213.0,       1.5);         ( 565275.6, 4190883.6,      70.2,     213.0,       1.5);
    ( 565285.6, 4190883.6,      70.7,     213.0,       1.5);         ( 565315.6, 4190883.6,      72.1,      72.1,       1.5);
    ( 565325.6, 4190883.6,      72.4,     213.0,       1.5);         ( 565335.6, 4190883.6,      72.7,     213.0,       1.5);
    ( 565345.6, 4190883.6,      73.1,     213.0,       1.5);         ( 565355.6, 4190883.6,      73.6,      73.6,       1.5);
    ( 565365.6, 4190883.6,      74.2,      74.2,       1.5);         ( 565375.6, 4190883.6,      74.7,      74.7,       1.5);
    ( 565385.6, 4190883.6,      75.1,      75.1,       1.5);         ( 565395.6, 4190883.6,      75.6,      75.6,       1.5);
    ( 565405.6, 4190883.6,      76.1,      76.1,       1.5);         ( 565435.6, 4190883.6,      77.6,      77.6,       1.5);
    ( 565445.6, 4190883.6,      78.0,      78.0,       1.5);         ( 565455.6, 4190883.6,      78.3,      78.3,       1.5);
    ( 565465.6, 4190883.6,      78.7,      78.7,       1.5);         ( 565475.6, 4190883.6,      79.1,      79.1,       1.5);
    ( 565485.6, 4190883.6,      79.6,      79.6,       1.5);         ( 565495.6, 4190883.6,      80.1,      80.1,       1.5);
    ( 565505.6, 4190883.6,      80.4,      80.4,       1.5);         ( 565515.6, 4190883.6,      80.7,      80.7,       1.5);
    ( 565545.6, 4190883.6,      81.7,      81.7,       1.5);         ( 565555.6, 4190883.6,      82.1,      82.1,       1.5);
    ( 565065.6, 4190893.6,      63.7,      63.7,       1.5);         ( 565075.6, 4190893.6,      64.1,      64.1,       1.5);
    ( 565085.6, 4190893.6,      64.4,      64.4,       1.5);         ( 565095.6, 4190893.6,      64.7,      64.7,       1.5);
    ( 565105.6, 4190893.6,      65.1,      65.1,       1.5);         ( 565245.6, 4190893.6,      68.7,     213.0,       1.5);
    ( 565255.6, 4190893.6,      69.1,     213.0,       1.5);         ( 565265.6, 4190893.6,      69.8,     213.0,       1.5);
    ( 565275.6, 4190893.6,      70.4,     213.0,       1.5);         ( 565285.6, 4190893.6,      71.0,     213.0,       1.5);
    ( 565315.6, 4190893.6,      72.1,     213.0,       1.5);         ( 565325.6, 4190893.6,      72.4,     213.0,       1.5);
    ( 565335.6, 4190893.6,      72.7,     213.0,       1.5);         ( 565345.6, 4190893.6,      73.1,     213.0,       1.5);
    ( 565355.6, 4190893.6,      73.8,     213.0,       1.5);         ( 565365.6, 4190893.6,      74.4,     213.0,       1.5);
    ( 565375.6, 4190893.6,      75.0,     213.0,       1.5);         ( 565385.6, 4190893.6,      75.3,     213.0,       1.5);
    ( 565395.6, 4190893.6,      75.7,     213.0,       1.5);         ( 565405.6, 4190893.6,      76.1,     213.0,       1.5);
    ( 565435.6, 4190893.6,      78.0,      78.0,       1.5);         ( 565445.6, 4190893.6,      78.3,      78.3,       1.5);
    ( 565455.6, 4190893.6,      78.6,      78.6,       1.5);         ( 565465.6, 4190893.6,      79.0,      79.0,       1.5);
    ( 565475.6, 4190893.6,      79.3,      79.3,       1.5);         ( 565485.6, 4190893.6,      79.7,      79.7,       1.5);
    ( 565495.6, 4190893.6,      80.1,      80.1,       1.5);         ( 565505.6, 4190893.6,      80.4,      80.4,       1.5);
    ( 565515.6, 4190893.6,      80.7,      80.7,       1.5);         ( 565545.6, 4190893.6,      81.7,      81.7,       1.5);
    ( 565555.6, 4190893.6,      82.1,      82.1,       1.5);         ( 565065.6, 4190903.6,      64.0,      64.0,       1.5);
    ( 565075.6, 4190903.6,      64.3,      64.3,       1.5);         ( 565085.6, 4190903.6,      64.6,      64.6,       1.5);
    ( 565095.6, 4190903.6,      65.0,      65.0,       1.5);         ( 565105.6, 4190903.6,      65.3,      65.3,       1.5);
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    ( 565115.6, 4190903.6,      65.6,      65.6,       1.5);         ( 565145.6, 4190903.6,      66.6,      66.6,       1.5);
    ( 565155.6, 4190903.6,      67.0,      67.0,       1.5);         ( 565245.6, 4190903.6,      69.0,     213.0,       1.5);
    ( 565255.6, 4190903.6,      69.4,     213.0,       1.5);         ( 565265.6, 4190903.6,      70.0,     213.0,       1.5);
    ( 565275.6, 4190903.6,      70.7,     213.0,       1.5);         ( 565285.6, 4190903.6,      71.3,     213.0,       1.5);
    ( 565315.6, 4190903.6,      72.3,     213.0,       1.5);         ( 565325.6, 4190903.6,      72.5,     213.0,       1.5);
    ( 565335.6, 4190903.6,      72.8,     213.0,       1.5);         ( 565345.6, 4190903.6,      73.1,     213.0,       1.5);
    ( 565355.6, 4190903.6,      73.8,     213.0,       1.5);         ( 565365.6, 4190903.6,      74.5,     213.0,       1.5);
    ( 565375.6, 4190903.6,      75.1,     213.0,       1.5);         ( 565385.6, 4190903.6,      75.4,     213.0,       1.5);
    ( 565395.6, 4190903.6,      75.7,     213.0,       1.5);         ( 565405.6, 4190903.6,      76.1,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***       11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                            ***       14:10:30
                                                                                                                            PAGE  97
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                   (METERS)

    ( 565435.6, 4190903.6,      78.1,     213.0,       1.5);         ( 565445.6, 4190903.6,      78.4,      78.4,       1.5);
    ( 565455.6, 4190903.6,      78.7,      78.7,       1.5);         ( 565465.6, 4190903.6,      79.1,      79.1,       1.5);
    ( 565475.6, 4190903.6,      79.5,      79.5,       1.5);         ( 565485.6, 4190903.6,      79.9,      79.9,       1.5);
    ( 565495.6, 4190903.6,      80.3,      80.3,       1.5);         ( 565505.6, 4190903.6,      80.6,      80.6,       1.5);
    ( 565515.6, 4190903.6,      81.0,      81.0,       1.5);         ( 565545.6, 4190903.6,      82.0,      82.0,       1.5);
    ( 565555.6, 4190903.6,      82.4,      82.4,       1.5);         ( 565065.6, 4190913.6,      64.3,      64.3,       1.5);
    ( 565075.6, 4190913.6,      64.6,      64.6,       1.5);         ( 565085.6, 4190913.6,      65.0,      65.0,       1.5);
    ( 565095.6, 4190913.6,      65.3,      65.3,       1.5);         ( 565105.6, 4190913.6,      65.6,      65.6,       1.5);
    ( 565115.6, 4190913.6,      66.0,      66.0,       1.5);         ( 565145.6, 4190913.6,      67.0,     213.0,       1.5);
    ( 565155.6, 4190913.6,      67.3,     213.0,       1.5);         ( 565165.6, 4190913.6,      67.6,     213.0,       1.5);
    ( 565285.6, 4190913.6,      71.6,     213.0,       1.5);         ( 565315.6, 4190913.6,      72.6,     213.0,       1.5);
    ( 565325.6, 4190913.6,      72.8,     213.0,       1.5);         ( 565335.6, 4190913.6,      72.9,     213.0,       1.5);
    ( 565345.6, 4190913.6,      73.1,     213.0,       1.5);         ( 565355.6, 4190913.6,      73.8,     213.0,       1.5);
    ( 565365.6, 4190913.6,      74.5,     213.0,       1.5);         ( 565375.6, 4190913.6,      75.1,     213.0,       1.5);
    ( 565385.6, 4190913.6,      75.4,     213.0,       1.5);         ( 565395.6, 4190913.6,      75.7,     213.0,       1.5);
    ( 565405.6, 4190913.6,      76.1,     213.0,       1.5);         ( 565435.6, 4190913.6,      78.1,     213.0,       1.5);
    ( 565445.6, 4190913.6,      78.4,     213.0,       1.5);         ( 565455.6, 4190913.6,      78.7,     213.0,       1.5);
    ( 565465.6, 4190913.6,      79.1,     213.0,       1.5);         ( 565475.6, 4190913.6,      79.6,     213.0,       1.5);
    ( 565485.6, 4190913.6,      80.2,     213.0,       1.5);         ( 565495.6, 4190913.6,      80.6,     213.0,       1.5);
    ( 565505.6, 4190913.6,      81.0,     213.0,       1.5);         ( 565515.6, 4190913.6,      81.3,      81.3,       1.5);
    ( 565545.6, 4190913.6,      82.3,      82.3,       1.5);         ( 565555.6, 4190913.6,      82.7,      82.7,       1.5);
    ( 565565.6, 4190913.6,      83.1,      83.1,       1.5);         ( 565575.6, 4190913.6,      83.6,      83.6,       1.5);
    ( 565585.6, 4190913.6,      84.1,      84.1,       1.5);         ( 565595.6, 4190913.6,      84.4,      84.4,       1.5);
    ( 565605.6, 4190913.6,      84.7,      84.7,       1.5);         ( 565065.6, 4190923.6,      64.6,      64.6,       1.5);
    ( 565075.6, 4190923.6,      65.0,      65.0,       1.5);         ( 565085.6, 4190923.6,      65.3,      65.3,       1.5);
    ( 565095.6, 4190923.6,      65.6,     213.0,       1.5);         ( 565105.6, 4190923.6,      66.0,     213.0,       1.5);
    ( 565115.6, 4190923.6,      66.3,     213.0,       1.5);         ( 565145.6, 4190923.6,      67.3,     213.0,       1.5);
    ( 565155.6, 4190923.6,      67.6,     213.0,       1.5);         ( 565165.6, 4190923.6,      67.9,     213.0,       1.5);
    ( 565225.6, 4190923.6,      69.0,     213.0,       1.5);         ( 565235.6, 4190923.6,      69.3,     213.0,       1.5);
    ( 565395.6, 4190923.6,      75.7,     213.0,       1.5);         ( 565405.6, 4190923.6,      76.1,     213.0,       1.5);
    ( 565435.6, 4190923.6,      78.1,     213.0,       1.5);         ( 565445.6, 4190923.6,      78.4,     213.0,       1.5);
    ( 565455.6, 4190923.6,      78.7,     213.0,       1.5);         ( 565465.6, 4190923.6,      79.1,     213.0,       1.5);
    ( 565475.6, 4190923.6,      79.8,     213.0,       1.5);         ( 565485.6, 4190923.6,      80.4,     213.0,       1.5);
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    ( 565495.6, 4190923.6,      81.0,     213.0,       1.5);         ( 565505.6, 4190923.6,      81.3,     213.0,       1.5);
    ( 565515.6, 4190923.6,      81.6,     213.0,       1.5);         ( 565545.6, 4190923.6,      82.6,     213.0,       1.5);
    ( 565555.6, 4190923.6,      83.0,     213.0,       1.5);         ( 565565.6, 4190923.6,      83.3,     213.0,       1.5);
    ( 565575.6, 4190923.6,      83.7,      83.7,       1.5);         ( 565585.6, 4190923.6,      84.1,      84.1,       1.5);
    ( 565595.6, 4190923.6,      84.4,      84.4,       1.5);         ( 565605.6, 4190923.6,      84.7,      84.7,       1.5);
    ( 565615.6, 4190923.6,      85.1,      85.1,       1.5);         ( 565625.6, 4190923.6,      85.4,      85.4,       1.5);
    ( 565635.6, 4190923.6,      85.7,      85.7,       1.5);         ( 565055.6, 4190933.6,      64.4,     213.0,       1.5);
    ( 565065.6, 4190933.6,      64.7,     213.0,       1.5);         ( 565075.6, 4190933.6,      65.1,     213.0,       1.5);
    ( 565085.6, 4190933.6,      65.4,     213.0,       1.5);         ( 565095.6, 4190933.6,      65.7,     213.0,       1.5);
    ( 565105.6, 4190933.6,      66.1,     213.0,       1.5);         ( 565115.6, 4190933.6,      66.4,     213.0,       1.5);
    ( 565145.6, 4190933.6,      67.4,     213.0,       1.5);         ( 565155.6, 4190933.6,      67.7,     213.0,       1.5);
    ( 565225.6, 4190933.6,      69.3,     213.0,       1.5);         ( 565235.6, 4190933.6,      69.6,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                ***       11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                         ***       14:10:30
                                                                                                                         PAGE  98
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

    ( 565305.6, 4190933.6,      72.7,     213.0,       1.5);         ( 565315.6, 4190933.6,      73.0,     213.0,       1.5);
    ( 565325.6, 4190933.6,      73.1,     213.0,       1.5);         ( 565335.6, 4190933.6,      73.2,     213.0,       1.5);
    ( 565345.6, 4190933.6,      73.4,     213.0,       1.5);         ( 565355.6, 4190933.6,      74.0,     213.0,       1.5);
    ( 565365.6, 4190933.6,      74.5,     213.0,       1.5);         ( 565555.6, 4190933.6,      83.1,     213.0,       1.5);
    ( 565565.6, 4190933.6,      83.5,     213.0,       1.5);         ( 565575.6, 4190933.6,      83.9,     213.0,       1.5);
    ( 565585.6, 4190933.6,      84.3,     213.0,       1.5);         ( 565595.6, 4190933.6,      84.6,     213.0,       1.5);
    ( 565605.6, 4190933.6,      85.0,     213.0,       1.5);         ( 565615.6, 4190933.6,      85.3,     213.0,       1.5);
    ( 565625.6, 4190933.6,      85.6,     213.0,       1.5);         ( 565635.6, 4190933.6,      86.0,      86.0,       1.5);
    ( 565055.6, 4190943.6,      64.4,     213.0,       1.5);         ( 565065.6, 4190943.6,      64.7,     213.0,       1.5);
    ( 565075.6, 4190943.6,      65.1,     213.0,       1.5);         ( 565085.6, 4190943.6,      65.4,     213.0,       1.5);
    ( 565095.6, 4190943.6,      65.7,     213.0,       1.5);         ( 565105.6, 4190943.6,      66.1,     213.0,       1.5);
    ( 565115.6, 4190943.6,      66.4,     213.0,       1.5);         ( 565145.6, 4190943.6,      67.4,     213.0,       1.5);
    ( 565155.6, 4190943.6,      67.7,     213.0,       1.5);         ( 565265.6, 4190943.6,      71.1,     213.0,       1.5);
    ( 565275.6, 4190943.6,      71.6,     213.0,       1.5);         ( 565285.6, 4190943.6,      72.1,     213.0,       1.5);
    ( 565305.6, 4190943.6,      72.7,     213.0,       1.5);         ( 565315.6, 4190943.6,      73.0,     213.0,       1.5);
    ( 565325.6, 4190943.6,      73.2,     213.0,       1.5);         ( 565335.6, 4190943.6,      73.4,     213.0,       1.5);
    ( 565345.6, 4190943.6,      73.7,     213.0,       1.5);         ( 565355.6, 4190943.6,      74.1,     213.0,       1.5);
    ( 565365.6, 4190943.6,      74.6,     213.0,       1.5);         ( 565375.6, 4190943.6,      75.1,     213.0,       1.5);
    ( 565385.6, 4190943.6,      75.6,     213.0,       1.5);         ( 565395.6, 4190943.6,      76.2,     213.0,       1.5);
    ( 565425.6, 4190943.6,      78.0,     213.0,       1.5);         ( 565435.6, 4190943.6,      78.6,     213.0,       1.5);
    ( 565445.6, 4190943.6,      79.0,     213.0,       1.5);         ( 565455.6, 4190943.6,      79.3,     213.0,       1.5);
    ( 565465.6, 4190943.6,      79.7,     213.0,       1.5);         ( 565475.6, 4190943.6,      80.1,     213.0,       1.5);
    ( 565485.6, 4190943.6,      80.6,     213.0,       1.5);         ( 565495.6, 4190943.6,      81.1,     213.0,       1.5);
    ( 565505.6, 4190943.6,      81.4,     213.0,       1.5);         ( 565515.6, 4190943.6,      81.7,     213.0,       1.5);
    ( 565015.6, 4190953.6,      63.1,     213.0,       1.5);         ( 565025.6, 4190953.6,      63.4,     213.0,       1.5);
    ( 565035.6, 4190953.6,      63.7,     213.0,       1.5);         ( 565055.6, 4190953.6,      64.4,     213.0,       1.5);
    ( 565065.6, 4190953.6,      64.7,     213.0,       1.5);         ( 565075.6, 4190953.6,      65.1,     213.0,       1.5);
    ( 565085.6, 4190953.6,      65.4,     213.0,       1.5);         ( 565095.6, 4190953.6,      65.7,     213.0,       1.5);
    ( 565105.6, 4190953.6,      66.1,     213.0,       1.5);         ( 565115.6, 4190953.6,      66.4,     213.0,       1.5);
    ( 565145.6, 4190953.6,      67.4,     213.0,       1.5);         ( 565155.6, 4190953.6,      67.7,     213.0,       1.5);
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    ( 565265.6, 4190953.6,      71.3,     213.0,       1.5);         ( 565275.6, 4190953.6,      71.7,     213.0,       1.5);
    ( 565285.6, 4190953.6,      72.1,     213.0,       1.5);         ( 565305.6, 4190953.6,      72.7,     213.0,       1.5);
    ( 565315.6, 4190953.6,      73.1,     213.0,       1.5);         ( 565325.6, 4190953.6,      73.4,     213.0,       1.5);
    ( 565335.6, 4190953.6,      73.7,     213.0,       1.5);         ( 565345.6, 4190953.6,      74.0,     213.0,       1.5);
    ( 565355.6, 4190953.6,      74.3,     213.0,       1.5);         ( 565365.6, 4190953.6,      74.7,     213.0,       1.5);
    ( 565375.6, 4190953.6,      75.1,     213.0,       1.5);         ( 565385.6, 4190953.6,      75.8,     213.0,       1.5);
    ( 565395.6, 4190953.6,      76.4,     213.0,       1.5);         ( 565425.6, 4190953.6,      78.4,     213.0,       1.5);
    ( 565435.6, 4190953.6,      79.0,     213.0,       1.5);         ( 565445.6, 4190953.6,      79.3,     213.0,       1.5);
    ( 565455.6, 4190953.6,      79.6,     213.0,       1.5);         ( 565465.6, 4190953.6,      80.0,     213.0,       1.5);
    ( 565475.6, 4190953.6,      80.3,     213.0,       1.5);         ( 565485.6, 4190953.6,      80.7,     213.0,       1.5);
    ( 565495.6, 4190953.6,      81.1,     213.0,       1.5);         ( 565505.6, 4190953.6,      81.4,     213.0,       1.5);
    ( 565515.6, 4190953.6,      81.7,     213.0,       1.5);         ( 565535.6, 4190953.6,      82.4,     213.0,       1.5);
    ( 565545.6, 4190953.6,      82.7,     213.0,       1.5);         ( 565555.6, 4190953.6,      83.1,     213.0,       1.5);
    ( 565565.6, 4190953.6,      83.8,     213.0,       1.5);         ( 565575.6, 4190953.6,      84.4,     213.0,       1.5);
    ( 565585.6, 4190953.6,      85.0,     213.0,       1.5);         ( 565595.6, 4190953.6,      85.3,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE  99
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                    (METERS)

    ( 565605.6, 4190953.6,      85.6,     213.0,       1.5);         ( 565615.6, 4190953.6,      86.0,     213.0,       1.5);
    ( 565625.6, 4190953.6,      86.3,     213.0,       1.5);         ( 565015.6, 4190963.6,      63.3,     213.0,       1.5);
    ( 565025.6, 4190963.6,      63.6,     213.0,       1.5);         ( 565035.6, 4190963.6,      64.0,     213.0,       1.5);
    ( 565055.6, 4190963.6,      64.5,     213.0,       1.5);         ( 565065.6, 4190963.6,      64.8,     213.0,       1.5);
    ( 565075.6, 4190963.6,      65.1,     213.0,       1.5);         ( 565085.6, 4190963.6,      65.4,     213.0,       1.5);
    ( 565095.6, 4190963.6,      65.7,     213.0,       1.5);         ( 565105.6, 4190963.6,      66.1,     213.0,       1.5);
    ( 565115.6, 4190963.6,      66.4,     213.0,       1.5);         ( 565145.6, 4190963.6,      67.4,     213.0,       1.5);
    ( 565155.6, 4190963.6,      67.7,     213.0,       1.5);         ( 565265.6, 4190963.6,      71.6,     213.0,       1.5);
    ( 565275.6, 4190963.6,      72.0,     213.0,       1.5);         ( 565285.6, 4190963.6,      72.3,     213.0,       1.5);
    ( 565305.6, 4190963.6,      73.0,     213.0,       1.5);         ( 565315.6, 4190963.6,      73.3,     213.0,       1.5);
    ( 565325.6, 4190963.6,      73.6,     213.0,       1.5);         ( 565335.6, 4190963.6,      74.0,     213.0,       1.5);
    ( 565345.6, 4190963.6,      74.3,     213.0,       1.5);         ( 565355.6, 4190963.6,      74.6,     213.0,       1.5);
    ( 565365.6, 4190963.6,      75.0,     213.0,       1.5);         ( 565375.6, 4190963.6,      75.4,     213.0,       1.5);
    ( 565385.6, 4190963.6,      76.0,     213.0,       1.5);         ( 565395.6, 4190963.6,      76.7,     213.0,       1.5);
    ( 565425.6, 4190963.6,      78.5,     213.0,       1.5);         ( 565435.6, 4190963.6,      79.1,     213.0,       1.5);
    ( 565445.6, 4190963.6,      79.4,     213.0,       1.5);         ( 565455.6, 4190963.6,      79.7,     213.0,       1.5);
    ( 565465.6, 4190963.6,      80.1,     213.0,       1.5);         ( 565475.6, 4190963.6,      80.4,     213.0,       1.5);
    ( 565485.6, 4190963.6,      80.7,     213.0,       1.5);         ( 565495.6, 4190963.6,      81.1,     213.0,       1.5);
    ( 565505.6, 4190963.6,      81.5,     213.0,       1.5);         ( 565515.6, 4190963.6,      81.9,     213.0,       1.5);
    ( 565535.6, 4190963.6,      82.6,     213.0,       1.5);         ( 565545.6, 4190963.6,      83.0,     213.0,       1.5);
    ( 565555.6, 4190963.6,      83.4,     213.0,       1.5);         ( 565565.6, 4190963.6,      84.0,     213.0,       1.5);
    ( 565575.6, 4190963.6,      84.5,     213.0,       1.5);         ( 565585.6, 4190963.6,      85.1,     213.0,       1.5);
    ( 565595.6, 4190963.6,      85.5,     213.0,       1.5);         ( 565605.6, 4190963.6,      85.9,     213.0,       1.5);
    ( 565615.6, 4190963.6,      86.3,     213.0,       1.5);         ( 565625.6, 4190963.6,      86.6,     213.0,       1.5);
    ( 565055.6, 4190973.6,      64.8,     213.0,       1.5);         ( 565065.6, 4190973.6,      64.9,     213.0,       1.5);
    ( 565075.6, 4190973.6,      65.1,     213.0,       1.5);         ( 565085.6, 4190973.6,      65.4,     213.0,       1.5);
    ( 565095.6, 4190973.6,      65.7,     213.0,       1.5);         ( 565105.6, 4190973.6,      66.1,     213.0,       1.5);
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    ( 565115.6, 4190973.6,      66.4,     213.0,       1.5);         ( 565145.6, 4190973.6,      67.4,     213.0,       1.5);
    ( 565155.6, 4190973.6,      67.7,     213.0,       1.5);         ( 565265.6, 4190973.6,      72.0,     213.0,       1.5);
    ( 565275.6, 4190973.6,      72.3,     213.0,       1.5);         ( 565305.6, 4190973.6,      73.3,     213.0,       1.5);
    ( 565315.6, 4190973.6,      73.6,     213.0,       1.5);         ( 565325.6, 4190973.6,      74.0,     213.0,       1.5);
    ( 565335.6, 4190973.6,      74.3,     213.0,       1.5);         ( 565345.6, 4190973.6,      74.6,     213.0,       1.5);
    ( 565355.6, 4190973.6,      75.0,     213.0,       1.5);         ( 565365.6, 4190973.6,      75.3,     213.0,       1.5);
    ( 565375.6, 4190973.6,      75.7,     213.0,       1.5);         ( 565385.6, 4190973.6,      76.4,     213.0,       1.5);
    ( 565395.6, 4190973.6,      77.0,     213.0,       1.5);         ( 565425.6, 4190973.6,      78.6,     213.0,       1.5);
    ( 565435.6, 4190973.6,      79.1,     213.0,       1.5);         ( 565445.6, 4190973.6,      79.4,     213.0,       1.5);
    ( 565455.6, 4190973.6,      79.7,     213.0,       1.5);         ( 565465.6, 4190973.6,      80.1,     213.0,       1.5);
    ( 565475.6, 4190973.6,      80.4,     213.0,       1.5);         ( 565485.6, 4190973.6,      80.7,     213.0,       1.5);
    ( 565495.6, 4190973.6,      81.1,     213.0,       1.5);         ( 565505.6, 4190973.6,      81.6,     213.0,       1.5);
    ( 565515.6, 4190973.6,      82.2,     213.0,       1.5);         ( 565535.6, 4190973.6,      83.0,     213.0,       1.5);
    ( 565545.6, 4190973.6,      83.3,     213.0,       1.5);         ( 565555.6, 4190973.6,      83.7,     213.0,       1.5);
    ( 565565.6, 4190973.6,      84.1,     213.0,       1.5);         ( 565575.6, 4190973.6,      84.6,     213.0,       1.5);
    ( 565585.6, 4190973.6,      85.1,     213.0,       1.5);         ( 565595.6, 4190973.6,      85.6,     213.0,       1.5);
    ( 565605.6, 4190973.6,      86.2,     213.0,       1.5);         ( 565615.6, 4190973.6,      86.6,     213.0,       1.5);
    ( 565625.6, 4190973.6,      87.0,     213.0,       1.5);         ( 565655.6, 4190973.6,      88.0,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 100
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

    ( 564995.6, 4190983.6,      63.4,     213.0,       1.5);         ( 565005.6, 4190983.6,      63.7,     213.0,       1.5);
    ( 565095.6, 4190983.6,      65.7,     213.0,       1.5);         ( 565105.6, 4190983.6,      66.1,     213.0,       1.5);
    ( 565115.6, 4190983.6,      66.4,     213.0,       1.5);         ( 565145.6, 4190983.6,      67.4,     213.0,       1.5);
    ( 565155.6, 4190983.6,      67.7,     213.0,       1.5);         ( 565265.6, 4190983.6,      72.3,     213.0,       1.5);
    ( 565275.6, 4190983.6,      72.6,     213.0,       1.5);         ( 565305.6, 4190983.6,      73.6,     213.0,       1.5);
    ( 565315.6, 4190983.6,      74.0,     213.0,       1.5);         ( 565325.6, 4190983.6,      74.3,     213.0,       1.5);
    ( 565335.6, 4190983.6,      74.6,     213.0,       1.5);         ( 565345.6, 4190983.6,      75.0,     213.0,       1.5);
    ( 565355.6, 4190983.6,      75.3,     213.0,       1.5);         ( 565365.6, 4190983.6,      75.6,     213.0,       1.5);
    ( 565375.6, 4190983.6,      76.0,     213.0,       1.5);         ( 565385.6, 4190983.6,      76.7,     213.0,       1.5);
    ( 565395.6, 4190983.6,      77.4,     213.0,       1.5);         ( 565425.6, 4190983.6,      78.7,     213.0,       1.5);
    ( 565435.6, 4190983.6,      79.1,     213.0,       1.5);         ( 565445.6, 4190983.6,      79.4,     213.0,       1.5);
    ( 565455.6, 4190983.6,      79.7,     213.0,       1.5);         ( 565465.6, 4190983.6,      80.1,     213.0,       1.5);
    ( 565475.6, 4190983.6,      80.4,     213.0,       1.5);         ( 565485.6, 4190983.6,      80.7,     213.0,       1.5);
    ( 565495.6, 4190983.6,      81.1,     213.0,       1.5);         ( 565505.6, 4190983.6,      81.8,     213.0,       1.5);
    ( 565535.6, 4190983.6,      83.3,     213.0,       1.5);         ( 565545.6, 4190983.6,      83.6,     213.0,       1.5);
    ( 565555.6, 4190983.6,      84.0,     213.0,       1.5);         ( 565565.6, 4190983.6,      84.3,     213.0,       1.5);
    ( 565575.6, 4190983.6,      84.7,     213.0,       1.5);         ( 565585.6, 4190983.6,      85.1,     213.0,       1.5);
    ( 565595.6, 4190983.6,      85.8,     213.0,       1.5);         ( 565605.6, 4190983.6,      86.4,     213.0,       1.5);
    ( 565615.6, 4190983.6,      87.0,     213.0,       1.5);         ( 565625.6, 4190983.6,      87.3,     213.0,       1.5);
    ( 564995.6, 4190993.6,      63.6,     213.0,       1.5);         ( 565005.6, 4190993.6,      64.0,     213.0,       1.5);
    ( 565015.6, 4190993.6,      64.3,     213.0,       1.5);         ( 565025.6, 4190993.6,      64.5,     213.0,       1.5);
    ( 565055.6, 4190993.6,      65.1,     213.0,       1.5);         ( 565145.6, 4190993.6,      67.4,     213.0,       1.5);
    ( 565155.6, 4190993.6,      67.7,     213.0,       1.5);         ( 565265.6, 4190993.6,      72.5,     213.0,       1.5);
    ( 565275.6, 4190993.6,      72.9,     213.0,       1.5);         ( 565305.6, 4190993.6,      73.8,     213.0,       1.5);
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    ( 565315.6, 4190993.6,      74.1,     213.0,       1.5);         ( 565325.6, 4190993.6,      74.5,     213.0,       1.5);
    ( 565335.6, 4190993.6,      74.9,     213.0,       1.5);         ( 565345.6, 4190993.6,      75.3,     213.0,       1.5);
    ( 565355.6, 4190993.6,      75.6,     213.0,       1.5);         ( 565365.6, 4190993.6,      76.0,     213.0,       1.5);
    ( 565375.6, 4190993.6,      76.4,     213.0,       1.5);         ( 565385.6, 4190993.6,      77.0,     213.0,       1.5);
    ( 565395.6, 4190993.6,      77.5,     213.0,       1.5);         ( 565425.6, 4190993.6,      78.7,     213.0,       1.5);
    ( 565435.6, 4190993.6,      79.1,     213.0,       1.5);         ( 565445.6, 4190993.6,      79.5,     213.0,       1.5);
    ( 565455.6, 4190993.6,      79.9,     213.0,       1.5);         ( 565465.6, 4190993.6,      80.3,     213.0,       1.5);
    ( 565475.6, 4190993.6,      80.6,     213.0,       1.5);         ( 565485.6, 4190993.6,      81.0,     213.0,       1.5);
    ( 565495.6, 4190993.6,      81.4,     213.0,       1.5);         ( 565505.6, 4190993.6,      82.0,     213.0,       1.5);
    ( 565535.6, 4190993.6,      83.4,     213.0,       1.5);         ( 565545.6, 4190993.6,      83.7,     213.0,       1.5);
    ( 565555.6, 4190993.6,      84.1,     213.0,       1.5);         ( 565565.6, 4190993.6,      84.5,     213.0,       1.5);
    ( 565575.6, 4190993.6,      84.9,     213.0,       1.5);         ( 565585.6, 4190993.6,      85.4,     213.0,       1.5);
    ( 565595.6, 4190993.6,      86.0,     213.0,       1.5);         ( 565605.6, 4190993.6,      86.5,     213.0,       1.5);
    ( 565615.6, 4190993.6,      87.1,     213.0,       1.5);         ( 565625.6, 4190993.6,      87.5,     213.0,       1.5);
    ( 565655.6, 4190993.6,      88.6,     213.0,       1.5);         ( 565665.6, 4190993.6,      89.0,     213.0,       1.5);
    ( 564985.6, 4191003.6,      63.6,     213.0,       1.5);         ( 564995.6, 4191003.6,      64.0,     213.0,       1.5);
    ( 565005.6, 4191003.6,      64.3,     213.0,       1.5);         ( 565015.6, 4191003.6,      64.6,     213.0,       1.5);
    ( 565025.6, 4191003.6,      64.8,     213.0,       1.5);         ( 565055.6, 4191003.6,      65.2,     213.0,       1.5);
    ( 565065.6, 4191003.6,      65.4,     213.0,       1.5);         ( 565075.6, 4191003.6,      65.6,     213.0,       1.5);
    ( 565085.6, 4191003.6,      66.0,     213.0,       1.5);         ( 565095.6, 4191003.6,      66.3,     213.0,       1.5);
    ( 565105.6, 4191003.6,      66.6,     213.0,       1.5);         ( 565115.6, 4191003.6,      66.8,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 101
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                    (METERS)

    ( 565125.6, 4191003.6,      66.9,     213.0,       1.5);         ( 565135.6, 4191003.6,      67.1,     213.0,       1.5);
    ( 565145.6, 4191003.6,      67.4,     213.0,       1.5);         ( 565235.6, 4191003.6,      71.1,     213.0,       1.5);
    ( 565245.6, 4191003.6,      71.6,     213.0,       1.5);         ( 565255.6, 4191003.6,      72.1,     213.0,       1.5);
    ( 565265.6, 4191003.6,      72.6,     213.0,       1.5);         ( 565275.6, 4191003.6,      73.2,     213.0,       1.5);
    ( 565305.6, 4191003.6,      73.9,     213.0,       1.5);         ( 565315.6, 4191003.6,      74.1,     213.0,       1.5);
    ( 565325.6, 4191003.6,      74.6,     213.0,       1.5);         ( 565335.6, 4191003.6,      75.2,     213.0,       1.5);
    ( 565345.6, 4191003.6,      75.6,     213.0,       1.5);         ( 565355.6, 4191003.6,      76.0,     213.0,       1.5);
    ( 565365.6, 4191003.6,      76.3,     213.0,       1.5);         ( 565375.6, 4191003.6,      76.7,     213.0,       1.5);
    ( 565385.6, 4191003.6,      77.1,     213.0,       1.5);         ( 565395.6, 4191003.6,      77.6,     213.0,       1.5);
    ( 565425.6, 4191003.6,      78.7,     213.0,       1.5);         ( 565435.6, 4191003.6,      79.1,     213.0,       1.5);
    ( 565445.6, 4191003.6,      79.6,     213.0,       1.5);         ( 565455.6, 4191003.6,      80.2,     213.0,       1.5);
    ( 565465.6, 4191003.6,      80.6,     213.0,       1.5);         ( 565475.6, 4191003.6,      81.0,     213.0,       1.5);
    ( 565485.6, 4191003.6,      81.3,     213.0,       1.5);         ( 565495.6, 4191003.6,      81.7,     213.0,       1.5);
    ( 565505.6, 4191003.6,      82.1,     213.0,       1.5);         ( 565535.6, 4191003.6,      83.4,     213.0,       1.5);
    ( 565545.6, 4191003.6,      83.7,     213.0,       1.5);         ( 565555.6, 4191003.6,      84.1,     213.0,       1.5);
    ( 565565.6, 4191003.6,      84.6,     213.0,       1.5);         ( 565575.6, 4191003.6,      85.2,     213.0,       1.5);
    ( 565585.6, 4191003.6,      85.7,     213.0,       1.5);         ( 565595.6, 4191003.6,      86.1,     213.0,       1.5);
    ( 565605.6, 4191003.6,      86.6,     213.0,       1.5);         ( 565615.6, 4191003.6,      87.1,     213.0,       1.5);
    ( 565625.6, 4191003.6,      87.6,     213.0,       1.5);         ( 565655.6, 4191003.6,      89.0,     213.0,       1.5);
    ( 565665.6, 4191003.6,      89.3,     213.0,       1.5);         ( 565675.6, 4191003.6,      89.6,     213.0,       1.5);
    ( 565685.6, 4191003.6,      90.0,     213.0,       1.5);         ( 564985.6, 4191013.6,      64.0,     213.0,       1.5);
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    ( 564995.6, 4191013.6,      64.3,     213.0,       1.5);         ( 565005.6, 4191013.6,      64.6,     213.0,       1.5);
    ( 565015.6, 4191013.6,      64.9,     213.0,       1.5);         ( 565025.6, 4191013.6,      64.9,     213.0,       1.5);
    ( 565045.6, 4191013.6,      65.1,     213.0,       1.5);         ( 565055.6, 4191013.6,      65.4,     213.0,       1.5);
    ( 565065.6, 4191013.6,      65.7,     213.0,       1.5);         ( 565075.6, 4191013.6,      66.0,     213.0,       1.5);
    ( 565085.6, 4191013.6,      66.3,     213.0,       1.5);         ( 565095.6, 4191013.6,      66.6,     213.0,       1.5);
    ( 565105.6, 4191013.6,      66.9,     213.0,       1.5);         ( 565115.6, 4191013.6,      66.9,     213.0,       1.5);
    ( 565125.6, 4191013.6,      67.0,     213.0,       1.5);         ( 565135.6, 4191013.6,      67.1,     213.0,       1.5);
    ( 565145.6, 4191013.6,      67.4,     213.0,       1.5);         ( 565155.6, 4191013.6,      67.7,     213.0,       1.5);
    ( 565165.6, 4191013.6,      68.1,     213.0,       1.5);         ( 565175.6, 4191013.6,      68.8,     213.0,       1.5);
    ( 565185.6, 4191013.6,      69.4,     213.0,       1.5);         ( 565195.6, 4191013.6,      70.0,     213.0,       1.5);
    ( 565205.6, 4191013.6,      70.3,     213.0,       1.5);         ( 565235.6, 4191013.6,      71.3,     213.0,       1.5);
    ( 565245.6, 4191013.6,      71.7,     213.0,       1.5);         ( 565255.6, 4191013.6,      72.1,     213.0,       1.5);
    ( 565265.6, 4191013.6,      72.8,     213.0,       1.5);         ( 565275.6, 4191013.6,      73.4,     213.0,       1.5);
    ( 565295.6, 4191013.6,      73.9,     213.0,       1.5);         ( 565305.6, 4191013.6,      74.0,     213.0,       1.5);
    ( 565315.6, 4191013.6,      74.1,     213.0,       1.5);         ( 565325.6, 4191013.6,      74.8,     213.0,       1.5);
    ( 565335.6, 4191013.6,      75.4,     213.0,       1.5);         ( 565345.6, 4191013.6,      76.0,     213.0,       1.5);
    ( 565355.6, 4191013.6,      76.3,     213.0,       1.5);         ( 565365.6, 4191013.6,      76.6,     213.0,       1.5);
    ( 565375.6, 4191013.6,      77.0,     213.0,       1.5);         ( 565385.6, 4191013.6,      77.3,     213.0,       1.5);
    ( 565395.6, 4191013.6,      77.7,     213.0,       1.5);         ( 565425.6, 4191013.6,      78.7,     213.0,       1.5);
    ( 565435.6, 4191013.6,      79.1,     213.0,       1.5);         ( 565445.6, 4191013.6,      79.8,     213.0,       1.5);
    ( 565455.6, 4191013.6,      80.4,     213.0,       1.5);         ( 565465.6, 4191013.6,      81.0,     213.0,       1.5);
    ( 565475.6, 4191013.6,      81.3,     213.0,       1.5);         ( 565485.6, 4191013.6,      81.6,     213.0,       1.5);
    ( 565495.6, 4191013.6,      82.0,     213.0,       1.5);         ( 565505.6, 4191013.6,      82.3,     213.0,       1.5);
    ( 565535.6, 4191013.6,      83.4,     213.0,       1.5);         ( 565545.6, 4191013.6,      83.7,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                         ***        14:10:30
                                                                                                                          PAGE 102
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                   (METERS)

    ( 565555.6, 4191013.6,      84.1,     213.0,       1.5);         ( 565565.6, 4191013.6,      84.8,     213.0,       1.5);
    ( 565575.6, 4191013.6,      85.4,     213.0,       1.5);         ( 565585.6, 4191013.6,      86.0,     213.0,       1.5);
    ( 565595.6, 4191013.6,      86.3,     213.0,       1.5);         ( 565605.6, 4191013.6,      86.7,     213.0,       1.5);
    ( 565615.6, 4191013.6,      87.1,     213.0,       1.5);         ( 565625.6, 4191013.6,      87.8,     213.0,       1.5);
    ( 565655.6, 4191013.6,      89.3,     213.0,       1.5);         ( 565665.6, 4191013.6,      89.6,     213.0,       1.5);
    ( 565675.6, 4191013.6,      90.0,     213.0,       1.5);         ( 565685.6, 4191013.6,      90.3,     213.0,       1.5);
    ( 564975.6, 4191023.6,      64.0,     213.0,       1.5);         ( 564985.6, 4191023.6,      64.3,     213.0,       1.5);
    ( 564995.6, 4191023.6,      64.6,     213.0,       1.5);         ( 565005.6, 4191023.6,      65.0,     213.0,       1.5);
    ( 565015.6, 4191023.6,      65.2,     213.0,       1.5);         ( 565045.6, 4191023.6,      65.3,     213.0,       1.5);
    ( 565055.6, 4191023.6,      65.6,     213.0,       1.5);         ( 565065.6, 4191023.6,      66.0,     213.0,       1.5);
    ( 565075.6, 4191023.6,      66.3,     213.0,       1.5);         ( 565085.6, 4191023.6,      66.5,     213.0,       1.5);
    ( 565095.6, 4191023.6,      66.8,     213.0,       1.5);         ( 565105.6, 4191023.6,      67.0,     213.0,       1.5);
    ( 565115.6, 4191023.6,      67.1,     213.0,       1.5);         ( 565125.6, 4191023.6,      67.2,     213.0,       1.5);
    ( 565135.6, 4191023.6,      67.3,     213.0,       1.5);         ( 565145.6, 4191023.6,      67.6,     213.0,       1.5);
    ( 565155.6, 4191023.6,      68.0,     213.0,       1.5);         ( 565165.6, 4191023.6,      68.4,     213.0,       1.5);
    ( 565175.6, 4191023.6,      69.0,     213.0,       1.5);         ( 565185.6, 4191023.6,      69.5,     213.0,       1.5);
    ( 565195.6, 4191023.6,      70.1,     213.0,       1.5);         ( 565205.6, 4191023.6,      70.5,     213.0,       1.5);
    ( 565235.6, 4191023.6,      71.6,     213.0,       1.5);         ( 565245.6, 4191023.6,      72.0,     213.0,       1.5);
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    ( 565255.6, 4191023.6,      72.4,     213.0,       1.5);         ( 565265.6, 4191023.6,      73.0,     213.0,       1.5);
    ( 565275.6, 4191023.6,      73.5,     213.0,       1.5);         ( 565295.6, 4191023.6,      74.1,     213.0,       1.5);
    ( 565305.6, 4191023.6,      74.2,     213.0,       1.5);         ( 565315.6, 4191023.6,      74.4,     213.0,       1.5);
    ( 565325.6, 4191023.6,      75.0,     213.0,       1.5);         ( 565335.6, 4191023.6,      75.5,     213.0,       1.5);
    ( 565345.6, 4191023.6,      76.1,     213.0,       1.5);         ( 565355.6, 4191023.6,      76.5,     213.0,       1.5);
    ( 565365.6, 4191023.6,      76.9,     213.0,       1.5);         ( 565375.6, 4191023.6,      77.3,     213.0,       1.5);
    ( 565385.6, 4191023.6,      77.6,     213.0,       1.5);         ( 565395.6, 4191023.6,      78.0,     213.0,       1.5);
    ( 565425.6, 4191023.6,      79.0,     213.0,       1.5);         ( 565435.6, 4191023.6,      79.4,     213.0,       1.5);
    ( 565465.6, 4191023.6,      81.1,     213.0,       1.5);         ( 565475.6, 4191023.6,      81.5,     213.0,       1.5);
    ( 565485.6, 4191023.6,      81.9,     213.0,       1.5);         ( 565495.6, 4191023.6,      82.3,     213.0,       1.5);
    ( 565505.6, 4191023.6,      82.6,     213.0,       1.5);         ( 565535.6, 4191023.6,      83.6,     213.0,       1.5);
    ( 565545.6, 4191023.6,      84.0,     213.0,       1.5);         ( 565555.6, 4191023.6,      84.4,     213.0,       1.5);
    ( 565565.6, 4191023.6,      85.0,     213.0,       1.5);         ( 565575.6, 4191023.6,      85.7,     213.0,       1.5);
    ( 565585.6, 4191023.6,      86.3,     213.0,       1.5);         ( 565595.6, 4191023.6,      86.6,     213.0,       1.5);
    ( 565605.6, 4191023.6,      87.0,     213.0,       1.5);         ( 565615.6, 4191023.6,      87.4,     213.0,       1.5);
    ( 565625.6, 4191023.6,      88.0,     213.0,       1.5);         ( 565655.6, 4191023.6,      89.4,     213.0,       1.5);
    ( 565665.6, 4191023.6,      89.7,     213.0,       1.5);         ( 565675.6, 4191023.6,      90.1,     213.0,       1.5);
    ( 565685.6, 4191023.6,      90.5,     213.0,       1.5);         ( 565695.6, 4191023.6,      90.9,     213.0,       1.5);
    ( 564975.6, 4191033.6,      64.3,     213.0,       1.5);         ( 564985.6, 4191033.6,      64.6,     213.0,       1.5);
    ( 564995.6, 4191033.6,      65.0,     213.0,       1.5);         ( 565005.6, 4191033.6,      65.3,     213.0,       1.5);
    ( 565015.6, 4191033.6,      65.6,     213.0,       1.5);         ( 565045.6, 4191033.6,      65.6,     213.0,       1.5);
    ( 565055.6, 4191033.6,      66.0,     213.0,       1.5);         ( 565065.6, 4191033.6,      66.3,     213.0,       1.5);
    ( 565075.6, 4191033.6,      66.6,     213.0,       1.5);         ( 565135.6, 4191033.6,      67.6,     213.0,       1.5);
    ( 565145.6, 4191033.6,      68.0,     213.0,       1.5);         ( 565155.6, 4191033.6,      68.3,     213.0,       1.5);
    ( 565165.6, 4191033.6,      68.7,     213.0,       1.5);         ( 565175.6, 4191033.6,      69.1,     213.0,       1.5);
    ( 565185.6, 4191033.6,      69.6,     213.0,       1.5);         ( 565195.6, 4191033.6,      70.1,     213.0,       1.5);
    ( 565205.6, 4191033.6,      70.6,     213.0,       1.5);         ( 565265.6, 4191033.6,      73.1,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 103
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

    ( 565275.6, 4191033.6,      73.6,     213.0,       1.5);         ( 565295.6, 4191033.6,      74.2,     213.0,       1.5);
    ( 565305.6, 4191033.6,      74.4,     213.0,       1.5);         ( 565315.6, 4191033.6,      74.7,     213.0,       1.5);
    ( 565325.6, 4191033.6,      75.1,     213.0,       1.5);         ( 565335.6, 4191033.6,      75.6,     213.0,       1.5);
    ( 565345.6, 4191033.6,      76.1,     213.0,       1.5);         ( 565355.6, 4191033.6,      76.6,     213.0,       1.5);
    ( 565365.6, 4191033.6,      77.2,     213.0,       1.5);         ( 565375.6, 4191033.6,      77.6,     213.0,       1.5);
    ( 565385.6, 4191033.6,      78.0,     213.0,       1.5);         ( 565465.6, 4191033.6,      81.1,     213.0,       1.5);
    ( 565475.6, 4191033.6,      81.6,     213.0,       1.5);         ( 565485.6, 4191033.6,      82.2,     213.0,       1.5);
    ( 565495.6, 4191033.6,      82.6,     213.0,       1.5);         ( 565505.6, 4191033.6,      83.0,     213.0,       1.5);
    ( 565535.6, 4191033.6,      84.0,     213.0,       1.5);         ( 565545.6, 4191033.6,      84.3,     213.0,       1.5);
    ( 565555.6, 4191033.6,      84.7,     213.0,       1.5);         ( 565565.6, 4191033.6,      85.4,     213.0,       1.5);
    ( 565575.6, 4191033.6,      86.0,     213.0,       1.5);         ( 565585.6, 4191033.6,      86.6,     213.0,       1.5);
    ( 565595.6, 4191033.6,      87.0,     213.0,       1.5);         ( 565605.6, 4191033.6,      87.3,     213.0,       1.5);
    ( 565615.6, 4191033.6,      87.7,     213.0,       1.5);         ( 565625.6, 4191033.6,      88.1,     213.0,       1.5);
    ( 565655.6, 4191033.6,      89.4,     213.0,       1.5);         ( 565665.6, 4191033.6,      89.7,     213.0,       1.5);
    ( 565675.6, 4191033.6,      90.1,     213.0,       1.5);         ( 565685.6, 4191033.6,      90.6,     213.0,       1.5);
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    ( 565695.6, 4191033.6,      91.2,     213.0,       1.5);         ( 564975.6, 4191043.6,      64.6,     213.0,       1.5);
    ( 564985.6, 4191043.6,      65.0,     213.0,       1.5);         ( 564995.6, 4191043.6,      65.3,     213.0,       1.5);
    ( 565005.6, 4191043.6,      65.6,     213.0,       1.5);         ( 565015.6, 4191043.6,      65.9,     213.0,       1.5);
    ( 565045.6, 4191043.6,      66.0,     213.0,       1.5);         ( 565055.6, 4191043.6,      66.3,     213.0,       1.5);
    ( 565065.6, 4191043.6,      66.6,     213.0,       1.5);         ( 565075.6, 4191043.6,      66.9,     213.0,       1.5);
    ( 565135.6, 4191043.6,      68.0,     213.0,       1.5);         ( 565145.6, 4191043.6,      68.3,     213.0,       1.5);
    ( 565155.6, 4191043.6,      68.6,     213.0,       1.5);         ( 565165.6, 4191043.6,      69.0,     213.0,       1.5);
    ( 565175.6, 4191043.6,      69.3,     213.0,       1.5);         ( 565185.6, 4191043.6,      69.7,     213.0,       1.5);
    ( 565195.6, 4191043.6,      70.1,     213.0,       1.5);         ( 565205.6, 4191043.6,      70.8,     213.0,       1.5);
    ( 565265.6, 4191043.6,      73.3,     213.0,       1.5);         ( 565275.6, 4191043.6,      73.7,     213.0,       1.5);
    ( 565295.6, 4191043.6,      74.4,     213.0,       1.5);         ( 565305.6, 4191043.6,      74.7,     213.0,       1.5);
    ( 565315.6, 4191043.6,      75.0,     213.0,       1.5);         ( 565325.6, 4191043.6,      75.3,     213.0,       1.5);
    ( 565335.6, 4191043.6,      75.7,     213.0,       1.5);         ( 565345.6, 4191043.6,      76.1,     213.0,       1.5);
    ( 565355.6, 4191043.6,      76.8,     213.0,       1.5);         ( 565365.6, 4191043.6,      77.4,     213.0,       1.5);
    ( 565375.6, 4191043.6,      78.0,     213.0,       1.5);         ( 565385.6, 4191043.6,      78.3,     213.0,       1.5);
    ( 565465.6, 4191043.6,      81.1,     213.0,       1.5);         ( 565475.6, 4191043.6,      81.8,     213.0,       1.5);
    ( 565485.6, 4191043.6,      82.4,     213.0,       1.5);         ( 565495.6, 4191043.6,      83.0,     213.0,       1.5);
    ( 565505.6, 4191043.6,      83.3,     213.0,       1.5);         ( 565535.6, 4191043.6,      84.3,     213.0,       1.5);
    ( 565545.6, 4191043.6,      84.6,     213.0,       1.5);         ( 565555.6, 4191043.6,      85.0,     213.0,       1.5);
    ( 565565.6, 4191043.6,      85.7,     213.0,       1.5);         ( 565575.6, 4191043.6,      86.4,     213.0,       1.5);
    ( 565585.6, 4191043.6,      87.0,     213.0,       1.5);         ( 565595.6, 4191043.6,      87.3,     213.0,       1.5);
    ( 565605.6, 4191043.6,      87.6,     213.0,       1.5);         ( 565615.6, 4191043.6,      88.0,     213.0,       1.5);
    ( 565625.6, 4191043.6,      88.3,     213.0,       1.5);         ( 565645.6, 4191043.6,      89.1,     213.0,       1.5);
    ( 565655.6, 4191043.6,      89.4,     213.0,       1.5);         ( 565665.6, 4191043.6,      89.7,     213.0,       1.5);
    ( 565675.6, 4191043.6,      90.1,     213.0,       1.5);         ( 565685.6, 4191043.6,      90.8,     213.0,       1.5);
    ( 565695.6, 4191043.6,      91.4,     213.0,       1.5);         ( 564975.6, 4191053.6,      65.0,     213.0,       1.5);
    ( 564985.6, 4191053.6,      65.3,     213.0,       1.5);         ( 564995.6, 4191053.6,      65.5,     213.0,       1.5);
    ( 565005.6, 4191053.6,      65.8,     213.0,       1.5);         ( 565015.6, 4191053.6,      66.0,     213.0,       1.5);
    ( 565045.6, 4191053.6,      66.3,     213.0,       1.5);         ( 565055.6, 4191053.6,      66.5,     213.0,       1.5);
    ( 565065.6, 4191053.6,      66.8,     213.0,       1.5);         ( 565075.6, 4191053.6,      67.0,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 104
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

    ( 565105.6, 4191053.6,      67.3,     213.0,       1.5);         ( 565115.6, 4191053.6,      67.6,     213.0,       1.5);
    ( 565155.6, 4191053.6,      69.0,     213.0,       1.5);         ( 565165.6, 4191053.6,      69.3,     213.0,       1.5);
    ( 565175.6, 4191053.6,      69.6,     213.0,       1.5);         ( 565185.6, 4191053.6,      70.0,     213.0,       1.5);
    ( 565195.6, 4191053.6,      70.4,     213.0,       1.5);         ( 565205.6, 4191053.6,      71.0,     213.0,       1.5);
    ( 565235.6, 4191053.6,      72.4,     213.0,       1.5);         ( 565245.6, 4191053.6,      72.7,     213.0,       1.5);
    ( 565255.6, 4191053.6,      73.1,     213.0,       1.5);         ( 565265.6, 4191053.6,      73.4,     213.0,       1.5);
    ( 565275.6, 4191053.6,      73.7,     213.0,       1.5);         ( 565295.6, 4191053.6,      74.5,     213.0,       1.5);
    ( 565305.6, 4191053.6,      74.9,     213.0,       1.5);         ( 565315.6, 4191053.6,      75.3,     213.0,       1.5);
    ( 565325.6, 4191053.6,      75.6,     213.0,       1.5);         ( 565335.6, 4191053.6,      76.0,     213.0,       1.5);
    ( 565345.6, 4191053.6,      76.4,     213.0,       1.5);         ( 565355.6, 4191053.6,      77.0,     213.0,       1.5);
    ( 565365.6, 4191053.6,      77.5,     213.0,       1.5);         ( 565375.6, 4191053.6,      78.1,     213.0,       1.5);
    ( 565385.6, 4191053.6,      78.5,     213.0,       1.5);         ( 565465.6, 4191053.6,      81.4,     213.0,       1.5);
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    ( 565475.6, 4191053.6,      82.0,     213.0,       1.5);         ( 565485.6, 4191053.6,      82.5,     213.0,       1.5);
    ( 565495.6, 4191053.6,      83.1,     213.0,       1.5);         ( 565505.6, 4191053.6,      83.4,     213.0,       1.5);
    ( 565535.6, 4191053.6,      84.5,     213.0,       1.5);         ( 565545.6, 4191053.6,      84.9,     213.0,       1.5);
    ( 565555.6, 4191053.6,      85.4,     213.0,       1.5);         ( 565565.6, 4191053.6,      86.0,     213.0,       1.5);
    ( 565575.6, 4191053.6,      86.5,     213.0,       1.5);         ( 565585.6, 4191053.6,      87.1,     213.0,       1.5);
    ( 565595.6, 4191053.6,      87.5,     213.0,       1.5);         ( 565605.6, 4191053.6,      87.9,     213.0,       1.5);
    ( 565615.6, 4191053.6,      88.3,     213.0,       1.5);         ( 565625.6, 4191053.6,      88.6,     213.0,       1.5);
    ( 565645.6, 4191053.6,      89.3,     213.0,       1.5);         ( 565655.6, 4191053.6,      89.6,     213.0,       1.5);
    ( 565665.6, 4191053.6,      90.0,     213.0,       1.5);         ( 565675.6, 4191053.6,      90.4,     213.0,       1.5);
    ( 565685.6, 4191053.6,      91.0,     213.0,       1.5);         ( 565695.6, 4191053.6,      91.5,     213.0,       1.5);
    ( 565705.6, 4191053.6,      92.0,     213.0,       1.5);         ( 564995.6, 4191063.6,      65.8,     213.0,       1.5);
    ( 565005.6, 4191063.6,      65.9,     213.0,       1.5);         ( 565015.6, 4191063.6,      66.0,     213.0,       1.5);
    ( 565045.6, 4191063.6,      66.6,     213.0,       1.5);         ( 565055.6, 4191063.6,      66.8,     213.0,       1.5);
    ( 565065.6, 4191063.6,      66.9,     213.0,       1.5);         ( 565075.6, 4191063.6,      67.0,     213.0,       1.5);
    ( 565095.6, 4191063.6,      67.4,     213.0,       1.5);         ( 565105.6, 4191063.6,      67.6,     213.0,       1.5);
    ( 565115.6, 4191063.6,      68.0,     213.0,       1.5);         ( 565125.6, 4191063.6,      68.3,     213.0,       1.5);
    ( 565135.6, 4191063.6,      68.6,     213.0,       1.5);         ( 565145.6, 4191063.6,      69.0,     213.0,       1.5);
    ( 565155.6, 4191063.6,      69.3,     213.0,       1.5);         ( 565165.6, 4191063.6,      69.6,     213.0,       1.5);
    ( 565175.6, 4191063.6,      70.0,     213.0,       1.5);         ( 565185.6, 4191063.6,      70.3,     213.0,       1.5);
    ( 565195.6, 4191063.6,      70.7,     213.0,       1.5);         ( 565205.6, 4191063.6,      71.1,     213.0,       1.5);
    ( 565235.6, 4191063.6,      72.4,     213.0,       1.5);         ( 565245.6, 4191063.6,      72.7,     213.0,       1.5);
    ( 565255.6, 4191063.6,      73.1,     213.0,       1.5);         ( 565265.6, 4191063.6,      73.4,     213.0,       1.5);
    ( 565275.6, 4191063.6,      73.7,     213.0,       1.5);         ( 565295.6, 4191063.6,      74.6,     213.0,       1.5);
    ( 565305.6, 4191063.6,      75.2,     213.0,       1.5);         ( 565315.6, 4191063.6,      75.6,     213.0,       1.5);
    ( 565325.6, 4191063.6,      76.0,     213.0,       1.5);         ( 565335.6, 4191063.6,      76.3,     213.0,       1.5);
    ( 565345.6, 4191063.6,      76.7,     213.0,       1.5);         ( 565355.6, 4191063.6,      77.1,     213.0,       1.5);
    ( 565365.6, 4191063.6,      77.6,     213.0,       1.5);         ( 565375.6, 4191063.6,      78.1,     213.0,       1.5);
    ( 565385.6, 4191063.6,      78.6,     213.0,       1.5);         ( 565485.6, 4191063.6,      82.6,     213.0,       1.5);
    ( 565495.6, 4191063.6,      83.1,     213.0,       1.5);         ( 565505.6, 4191063.6,      83.4,     213.0,       1.5);
    ( 565535.6, 4191063.6,      84.6,     213.0,       1.5);         ( 565545.6, 4191063.6,      85.2,     213.0,       1.5);
    ( 565555.6, 4191063.6,      85.7,     213.0,       1.5);         ( 565565.6, 4191063.6,      86.1,     213.0,       1.5);
    ( 565575.6, 4191063.6,      86.6,     213.0,       1.5);         ( 565585.6, 4191063.6,      87.1,     213.0,       1.5);
    ( 565595.6, 4191063.6,      87.6,     213.0,       1.5);         ( 565605.6, 4191063.6,      88.2,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 105
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

    ( 565615.6, 4191063.6,      88.6,     213.0,       1.5);         ( 565645.6, 4191063.6,      89.6,     213.0,       1.5);
    ( 565655.6, 4191063.6,      90.0,     213.0,       1.5);         ( 565665.6, 4191063.6,      90.3,     213.0,       1.5);
    ( 565675.6, 4191063.6,      90.7,     213.0,       1.5);         ( 565685.6, 4191063.6,      91.1,     213.0,       1.5);
    ( 565695.6, 4191063.6,      91.6,     213.0,       1.5);         ( 565705.6, 4191063.6,      92.0,     213.0,       1.5);
    ( 565065.6, 4191073.6,      67.0,     213.0,       1.5);         ( 565075.6, 4191073.6,      67.1,     213.0,       1.5);
    ( 565095.6, 4191073.6,      67.7,     213.0,       1.5);         ( 565105.6, 4191073.6,      68.0,     213.0,       1.5);
    ( 565115.6, 4191073.6,      68.3,     213.0,       1.5);         ( 565125.6, 4191073.6,      68.6,     213.0,       1.5);
    ( 565135.6, 4191073.6,      69.0,     213.0,       1.5);         ( 565145.6, 4191073.6,      69.3,     213.0,       1.5);
    ( 565155.6, 4191073.6,      69.6,     213.0,       1.5);         ( 565165.6, 4191073.6,      70.0,     213.0,       1.5);
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( 565175.6, 4191073.6,      70.3,     213.0,       1.5);         ( 565185.6, 4191073.6,      70.6,     213.0,       1.5);
( 565195.6, 4191073.6,      71.0,     213.0,       1.5);         ( 565205.6, 4191073.6,      71.3,     213.0,       1.5);
( 565235.6, 4191073.6,      72.4,     213.0,       1.5);         ( 565245.6, 4191073.6,      72.7,     213.0,       1.5);
( 565255.6, 4191073.6,      73.1,     213.0,       1.5);         ( 565265.6, 4191073.6,      73.4,     213.0,       1.5);
( 565275.6, 4191073.6,      73.7,     213.0,       1.5);         ( 565295.6, 4191073.6,      74.8,     213.0,       1.5);
( 565305.6, 4191073.6,      75.4,     213.0,       1.5);         ( 565315.6, 4191073.6,      76.0,     213.0,       1.5);
( 565325.6, 4191073.6,      76.3,     213.0,       1.5);         ( 565335.6, 4191073.6,      76.6,     213.0,       1.5);
( 565345.6, 4191073.6,      77.0,     213.0,       1.5);         ( 565355.6, 4191073.6,      77.3,     213.0,       1.5);
( 565365.6, 4191073.6,      77.7,     213.0,       1.5);         ( 565375.6, 4191073.6,      78.1,     213.0,       1.5);
( 565385.6, 4191073.6,      78.8,     213.0,       1.5);         ( 565465.6, 4191073.6,      82.0,     213.0,       1.5);
( 565475.6, 4191073.6,      82.3,     213.0,       1.5);         ( 565485.6, 4191073.6,      82.7,     213.0,       1.5);
( 565495.6, 4191073.6,      83.1,     213.0,       1.5);         ( 565505.6, 4191073.6,      83.4,     213.0,       1.5);
( 565535.6, 4191073.6,      84.8,     213.0,       1.5);         ( 565545.6, 4191073.6,      85.4,     213.0,       1.5);
( 565555.6, 4191073.6,      86.0,     213.0,       1.5);         ( 565565.6, 4191073.6,      86.3,     213.0,       1.5);
( 565575.6, 4191073.6,      86.7,     213.0,       1.5);         ( 565585.6, 4191073.6,      87.1,     213.0,       1.5);
( 565595.6, 4191073.6,      87.8,     213.0,       1.5);         ( 565605.6, 4191073.6,      88.4,     213.0,       1.5);
( 565615.6, 4191073.6,      89.0,     213.0,       1.5);         ( 565645.6, 4191073.6,      90.0,     213.0,       1.5);
( 565655.6, 4191073.6,      90.3,     213.0,       1.5);         ( 565665.6, 4191073.6,      90.6,     213.0,       1.5);
( 565675.6, 4191073.6,      91.0,     213.0,       1.5);         ( 565685.6, 4191073.6,      91.3,     213.0,       1.5);
( 565695.6, 4191073.6,      91.7,     213.0,       1.5);         ( 565705.6, 4191073.6,      92.1,     213.0,       1.5);
( 564955.6, 4191083.6,      65.3,     213.0,       1.5);         ( 564965.6, 4191083.6,      65.6,     213.0,       1.5);
( 564975.6, 4191083.6,      66.0,     213.0,       1.5);         ( 564985.6, 4191083.6,      66.2,     213.0,       1.5);
( 564995.6, 4191083.6,      66.2,     213.0,       1.5);         ( 565005.6, 4191083.6,      66.2,     213.0,       1.5);
( 565015.6, 4191083.6,      66.3,     213.0,       1.5);         ( 565105.6, 4191083.6,      68.3,     213.0,       1.5);
( 565115.6, 4191083.6,      68.6,     213.0,       1.5);         ( 565125.6, 4191083.6,      69.0,     213.0,       1.5);
( 565135.6, 4191083.6,      69.3,     213.0,       1.5);         ( 565145.6, 4191083.6,      69.5,     213.0,       1.5);
( 565155.6, 4191083.6,      69.8,     213.0,       1.5);         ( 565165.6, 4191083.6,      70.1,     213.0,       1.5);
( 565175.6, 4191083.6,      70.4,     213.0,       1.5);         ( 565185.6, 4191083.6,      70.7,     213.0,       1.5);
( 565195.6, 4191083.6,      71.1,     213.0,       1.5);         ( 565205.6, 4191083.6,      71.4,     213.0,       1.5);
( 565235.6, 4191083.6,      72.4,     213.0,       1.5);         ( 565245.6, 4191083.6,      72.7,     213.0,       1.5);
( 565255.6, 4191083.6,      73.1,     213.0,       1.5);         ( 565265.6, 4191083.6,      73.5,     213.0,       1.5);
( 565275.6, 4191083.6,      73.9,     213.0,       1.5);         ( 565295.6, 4191083.6,      75.0,     213.0,       1.5);
( 565305.6, 4191083.6,      75.5,     213.0,       1.5);         ( 565315.6, 4191083.6,      76.1,     213.0,       1.5);
( 565325.6, 4191083.6,      76.5,     213.0,       1.5);         ( 565335.6, 4191083.6,      76.9,     213.0,       1.5);
( 565345.6, 4191083.6,      77.3,     213.0,       1.5);         ( 565355.6, 4191083.6,      77.6,     213.0,       1.5);
( 565365.6, 4191083.6,      78.0,     213.0,       1.5);         ( 565375.6, 4191083.6,      78.4,     213.0,       1.5);
  *** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                    ***       14:10:30
                                                                                                                     PAGE 106
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                   *** DISCRETE CARTESIAN RECEPTORS ***
                                (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                              (METERS)

( 565385.6, 4191083.6,      79.0,     213.0,       1.5);         ( 565475.6, 4191083.6,      82.6,     213.0,       1.5);
( 565485.6, 4191083.6,      83.0,     213.0,       1.5);         ( 565495.6, 4191083.6,      83.3,     213.0,       1.5);
( 565505.6, 4191083.6,      83.7,     213.0,       1.5);         ( 565535.6, 4191083.6,      85.2,     213.0,       1.5);
( 565545.6, 4191083.6,      85.8,     213.0,       1.5);         ( 565555.6, 4191083.6,      86.3,     213.0,       1.5);
( 565565.6, 4191083.6,      86.6,     213.0,       1.5);         ( 565575.6, 4191083.6,      87.0,     213.0,       1.5);
( 565585.6, 4191083.6,      87.4,     213.0,       1.5);         ( 565595.6, 4191083.6,      88.0,     213.0,       1.5);
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    ( 565605.6, 4191083.6,      88.7,     213.0,       1.5);         ( 565615.6, 4191083.6,      89.3,     213.0,       1.5);
    ( 565645.6, 4191083.6,      90.3,     213.0,       1.5);         ( 565655.6, 4191083.6,      90.6,     213.0,       1.5);
    ( 565665.6, 4191083.6,      91.0,     213.0,       1.5);         ( 565675.6, 4191083.6,      91.3,     213.0,       1.5);
    ( 565685.6, 4191083.6,      91.6,     213.0,       1.5);         ( 565695.6, 4191083.6,      92.0,     213.0,       1.5);
    ( 565705.6, 4191083.6,      92.3,     213.0,       1.5);         ( 565715.6, 4191083.6,      92.6,     213.0,       1.5);
    ( 564955.6, 4191093.6,      65.6,     213.0,       1.5);         ( 564965.6, 4191093.6,      66.0,     213.0,       1.5);
    ( 564975.6, 4191093.6,      66.3,     213.0,       1.5);         ( 564985.6, 4191093.6,      66.6,     213.0,       1.5);
    ( 564995.6, 4191093.6,      66.6,     213.0,       1.5);         ( 565005.6, 4191093.6,      66.6,     213.0,       1.5);
    ( 565015.6, 4191093.6,      66.6,     213.0,       1.5);         ( 565035.6, 4191093.6,      66.9,     213.0,       1.5);
    ( 565045.6, 4191093.6,      67.0,     213.0,       1.5);         ( 565175.6, 4191093.6,      70.4,     213.0,       1.5);
    ( 565185.6, 4191093.6,      70.7,     213.0,       1.5);         ( 565195.6, 4191093.6,      71.1,     213.0,       1.5);
    ( 565205.6, 4191093.6,      71.4,     213.0,       1.5);         ( 565235.6, 4191093.6,      72.4,     213.0,       1.5);
    ( 565245.6, 4191093.6,      72.7,     213.0,       1.5);         ( 565255.6, 4191093.6,      73.1,     213.0,       1.5);
    ( 565265.6, 4191093.6,      73.6,     213.0,       1.5);         ( 565275.6, 4191093.6,      74.2,     213.0,       1.5);
    ( 565295.6, 4191093.6,      75.1,     213.0,       1.5);         ( 565305.6, 4191093.6,      75.6,     213.0,       1.5);
    ( 565315.6, 4191093.6,      76.1,     213.0,       1.5);         ( 565325.6, 4191093.6,      76.6,     213.0,       1.5);
    ( 565335.6, 4191093.6,      77.2,     213.0,       1.5);         ( 565345.6, 4191093.6,      77.6,     213.0,       1.5);
    ( 565355.6, 4191093.6,      78.0,     213.0,       1.5);         ( 565365.6, 4191093.6,      78.3,     213.0,       1.5);
    ( 565375.6, 4191093.6,      78.7,     213.0,       1.5);         ( 565385.6, 4191093.6,      79.4,     213.0,       1.5);
    ( 565535.6, 4191093.6,      85.7,     213.0,       1.5);         ( 565545.6, 4191093.6,      86.2,     213.0,       1.5);
    ( 565555.6, 4191093.6,      86.6,     213.0,       1.5);         ( 565565.6, 4191093.6,      87.0,     213.0,       1.5);
    ( 565575.6, 4191093.6,      87.3,     213.0,       1.5);         ( 565585.6, 4191093.6,      87.7,     213.0,       1.5);
    ( 565595.6, 4191093.6,      88.4,     213.0,       1.5);         ( 565605.6, 4191093.6,      89.0,     213.0,       1.5);
    ( 565615.6, 4191093.6,      89.6,     213.0,       1.5);         ( 565645.6, 4191093.6,      90.6,     213.0,       1.5);
    ( 565655.6, 4191093.6,      91.0,     213.0,       1.5);         ( 565665.6, 4191093.6,      91.3,     213.0,       1.5);
    ( 565675.6, 4191093.6,      91.6,     213.0,       1.5);         ( 565685.6, 4191093.6,      92.0,     213.0,       1.5);
    ( 565695.6, 4191093.6,      92.3,     213.0,       1.5);         ( 565705.6, 4191093.6,      92.6,     213.0,       1.5);
    ( 565715.6, 4191093.6,      93.0,     213.0,       1.5);         ( 564955.6, 4191103.6,      66.0,     213.0,       1.5);
    ( 564965.6, 4191103.6,      66.3,     213.0,       1.5);         ( 564975.6, 4191103.6,      66.6,     213.0,       1.5);
    ( 564985.6, 4191103.6,      66.9,     213.0,       1.5);         ( 564995.6, 4191103.6,      66.9,     213.0,       1.5);
    ( 565005.6, 4191103.6,      66.9,     213.0,       1.5);         ( 565035.6, 4191103.6,      67.0,     213.0,       1.5);
    ( 565045.6, 4191103.6,      67.1,     213.0,       1.5);         ( 565055.6, 4191103.6,      67.4,     213.0,       1.5);
    ( 565065.6, 4191103.6,      67.7,     213.0,       1.5);         ( 565075.6, 4191103.6,      68.0,     213.0,       1.5);
    ( 565235.6, 4191103.6,      72.4,     213.0,       1.5);         ( 565245.6, 4191103.6,      72.7,     213.0,       1.5);
    ( 565255.6, 4191103.6,      73.1,     213.0,       1.5);         ( 565265.6, 4191103.6,      73.8,     213.0,       1.5);
    ( 565275.6, 4191103.6,      74.4,     213.0,       1.5);         ( 565295.6, 4191103.6,      75.3,     213.0,       1.5);
    ( 565305.6, 4191103.6,      75.7,     213.0,       1.5);         ( 565315.6, 4191103.6,      76.1,     213.0,       1.5);
    ( 565325.6, 4191103.6,      76.8,     213.0,       1.5);         ( 565335.6, 4191103.6,      77.4,     213.0,       1.5);
    ( 565345.6, 4191103.6,      78.0,     213.0,       1.5);         ( 565355.6, 4191103.6,      78.3,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 107
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                   (METERS)

    ( 565365.6, 4191103.6,      78.6,     213.0,       1.5);         ( 565375.6, 4191103.6,      79.0,     213.0,       1.5);
    ( 565385.6, 4191103.6,      79.7,     213.0,       1.5);         ( 565485.6, 4191103.6,      83.6,     213.0,       1.5);
    ( 565495.6, 4191103.6,      84.0,     213.0,       1.5);         ( 565505.6, 4191103.6,      84.7,     213.0,       1.5);
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    ( 565525.6, 4191103.6,      85.9,     213.0,       1.5);         ( 565535.6, 4191103.6,      86.3,     213.0,       1.5);
    ( 565545.6, 4191103.6,      86.6,     213.0,       1.5);         ( 565555.6, 4191103.6,      87.0,     213.0,       1.5);
    ( 565565.6, 4191103.6,      87.3,     213.0,       1.5);         ( 565575.6, 4191103.6,      87.6,     213.0,       1.5);
    ( 565585.6, 4191103.6,      88.0,     213.0,       1.5);         ( 565595.6, 4191103.6,      88.7,     213.0,       1.5);
    ( 565605.6, 4191103.6,      89.4,     213.0,       1.5);         ( 565615.6, 4191103.6,      90.0,     213.0,       1.5);
    ( 565645.6, 4191103.6,      91.0,     213.0,       1.5);         ( 565655.6, 4191103.6,      91.3,     213.0,       1.5);
    ( 565665.6, 4191103.6,      91.6,     213.0,       1.5);         ( 565675.6, 4191103.6,      92.0,     213.0,       1.5);
    ( 565685.6, 4191103.6,      92.3,     213.0,       1.5);         ( 565695.6, 4191103.6,      92.6,     213.0,       1.5);
    ( 565705.6, 4191103.6,      93.0,     213.0,       1.5);         ( 565715.6, 4191103.6,      93.3,     213.0,       1.5);
    ( 564955.6, 4191113.6,      66.3,     213.0,       1.5);         ( 564965.6, 4191113.6,      66.5,     213.0,       1.5);
    ( 564975.6, 4191113.6,      66.8,     213.0,       1.5);         ( 564985.6, 4191113.6,      67.0,     213.0,       1.5);
    ( 564995.6, 4191113.6,      67.1,     213.0,       1.5);         ( 565005.6, 4191113.6,      67.2,     213.0,       1.5);
    ( 565025.6, 4191113.6,      67.2,     213.0,       1.5);         ( 565035.6, 4191113.6,      67.2,     213.0,       1.5);
    ( 565045.6, 4191113.6,      67.3,     213.0,       1.5);         ( 565055.6, 4191113.6,      67.6,     213.0,       1.5);
    ( 565065.6, 4191113.6,      68.0,     213.0,       1.5);         ( 565075.6, 4191113.6,      68.3,     213.0,       1.5);
    ( 565125.6, 4191113.6,      69.7,     213.0,       1.5);         ( 565135.6, 4191113.6,      70.0,     213.0,       1.5);
    ( 565145.6, 4191113.6,      70.1,     213.0,       1.5);         ( 565155.6, 4191113.6,      70.2,     213.0,       1.5);
    ( 565165.6, 4191113.6,      70.3,     213.0,       1.5);         ( 565175.6, 4191113.6,      70.6,     213.0,       1.5);
    ( 565185.6, 4191113.6,      71.0,     213.0,       1.5);         ( 565195.6, 4191113.6,      71.3,     213.0,       1.5);
    ( 565205.6, 4191113.6,      71.6,     213.0,       1.5);         ( 565295.6, 4191113.6,      75.5,     213.0,       1.5);
    ( 565305.6, 4191113.6,      75.9,     213.0,       1.5);         ( 565315.6, 4191113.6,      76.4,     213.0,       1.5);
    ( 565325.6, 4191113.6,      77.0,     213.0,       1.5);         ( 565335.6, 4191113.6,      77.5,     213.0,       1.5);
    ( 565345.6, 4191113.6,      78.1,     213.0,       1.5);         ( 565355.6, 4191113.6,      78.4,     213.0,       1.5);
    ( 565365.6, 4191113.6,      78.7,     213.0,       1.5);         ( 565375.6, 4191113.6,      79.1,     213.0,       1.5);
    ( 565385.6, 4191113.6,      79.8,     213.0,       1.5);         ( 565485.6, 4191113.6,      83.7,     213.0,       1.5);
    ( 565495.6, 4191113.6,      84.1,     213.0,       1.5);         ( 565505.6, 4191113.6,      84.8,     213.0,       1.5);
    ( 565525.6, 4191113.6,      86.1,     213.0,       1.5);         ( 565535.6, 4191113.6,      86.5,     213.0,       1.5);
    ( 565545.6, 4191113.6,      86.9,     213.0,       1.5);         ( 565555.6, 4191113.6,      87.3,     213.0,       1.5);
    ( 565565.6, 4191113.6,      87.6,     213.0,       1.5);         ( 565575.6, 4191113.6,      88.0,     213.0,       1.5);
    ( 565585.6, 4191113.6,      88.4,     213.0,       1.5);         ( 565595.6, 4191113.6,      89.0,     213.0,       1.5);
    ( 565605.6, 4191113.6,      89.7,     213.0,       1.5);         ( 565615.6, 4191113.6,      90.3,     213.0,       1.5);
    ( 565645.6, 4191113.6,      91.1,     213.0,       1.5);         ( 565655.6, 4191113.6,      91.5,     213.0,       1.5);
    ( 565665.6, 4191113.6,      91.9,     213.0,       1.5);         ( 565675.6, 4191113.6,      92.3,     213.0,       1.5);
    ( 565685.6, 4191113.6,      92.6,     213.0,       1.5);         ( 565695.6, 4191113.6,      93.0,     213.0,       1.5);
    ( 565705.6, 4191113.6,      93.3,     213.0,       1.5);         ( 565715.6, 4191113.6,      93.6,     213.0,       1.5);
    ( 565025.6, 4191123.6,      67.6,     213.0,       1.5);         ( 565035.6, 4191123.6,      67.6,     213.0,       1.5);
    ( 565045.6, 4191123.6,      67.6,     213.0,       1.5);         ( 565055.6, 4191123.6,      68.0,     213.0,       1.5);
    ( 565065.6, 4191123.6,      68.3,     213.0,       1.5);         ( 565125.6, 4191123.6,      69.7,     213.0,       1.5);
    ( 565135.6, 4191123.6,      70.0,     213.0,       1.5);         ( 565145.6, 4191123.6,      70.2,     213.0,       1.5);
    ( 565155.6, 4191123.6,      70.4,     213.0,       1.5);         ( 565165.6, 4191123.6,      70.6,     213.0,       1.5);
    ( 565175.6, 4191123.6,      71.0,     213.0,       1.5);         ( 565185.6, 4191123.6,      71.3,     213.0,       1.5);
    ( 565195.6, 4191123.6,      71.6,     213.0,       1.5);         ( 565205.6, 4191123.6,      72.0,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 108

*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                   *** DISCRETE CARTESIAN RECEPTORS ***
                                  (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)
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( 565245.6, 4191123.6,      73.3,     213.0,       1.5);         ( 565335.6, 4191123.6,      77.6,     213.0,       1.5);
( 565345.6, 4191123.6,      78.1,     213.0,       1.5);         ( 565355.6, 4191123.6,      78.4,     213.0,       1.5);
( 565365.6, 4191123.6,      78.7,     213.0,       1.5);         ( 565375.6, 4191123.6,      79.1,     213.0,       1.5);
( 565385.6, 4191123.6,      79.8,     213.0,       1.5);         ( 565495.6, 4191123.6,      84.1,     213.0,       1.5);
( 565525.6, 4191123.6,      86.1,     213.0,       1.5);         ( 565535.6, 4191123.6,      86.6,     213.0,       1.5);
( 565545.6, 4191123.6,      87.2,     213.0,       1.5);         ( 565555.6, 4191123.6,      87.6,     213.0,       1.5);
( 565565.6, 4191123.6,      88.0,     213.0,       1.5);         ( 565575.6, 4191123.6,      88.3,     213.0,       1.5);
( 565585.6, 4191123.6,      88.7,     213.0,       1.5);         ( 565595.6, 4191123.6,      89.4,     213.0,       1.5);
( 565605.6, 4191123.6,      90.0,     213.0,       1.5);         ( 565615.6, 4191123.6,      90.6,     213.0,       1.5);
( 565645.6, 4191123.6,      91.1,     213.0,       1.5);         ( 565655.6, 4191123.6,      91.6,     213.0,       1.5);
( 565665.6, 4191123.6,      92.2,     213.0,       1.5);         ( 565675.6, 4191123.6,      92.6,     213.0,       1.5);
( 565685.6, 4191123.6,      93.0,     213.0,       1.5);         ( 565695.6, 4191123.6,      93.3,     213.0,       1.5);
( 565705.6, 4191123.6,      93.6,     213.0,       1.5);         ( 565715.6, 4191123.6,      94.0,     213.0,       1.5);
( 565025.6, 4191133.6,      67.9,     213.0,       1.5);         ( 565035.6, 4191133.6,      67.9,     213.0,       1.5);
( 565045.6, 4191133.6,      68.0,     213.0,       1.5);         ( 565055.6, 4191133.6,      68.3,     213.0,       1.5);
( 565065.6, 4191133.6,      68.6,     213.0,       1.5);         ( 565125.6, 4191133.6,      69.7,     213.0,       1.5);
( 565135.6, 4191133.6,      70.1,     213.0,       1.5);         ( 565145.6, 4191133.6,      70.4,     213.0,       1.5);
( 565155.6, 4191133.6,      70.7,     213.0,       1.5);         ( 565165.6, 4191133.6,      71.0,     213.0,       1.5);
( 565175.6, 4191133.6,      71.3,     213.0,       1.5);         ( 565185.6, 4191133.6,      71.6,     213.0,       1.5);
( 565195.6, 4191133.6,      72.0,     213.0,       1.5);         ( 565205.6, 4191133.6,      72.3,     213.0,       1.5);
( 565245.6, 4191133.6,      73.6,     213.0,       1.5);         ( 565265.6, 4191133.6,      74.3,     213.0,       1.5);
( 565485.6, 4191133.6,      83.7,     213.0,       1.5);         ( 565495.6, 4191133.6,      84.1,     213.0,       1.5);
( 565525.6, 4191133.6,      86.1,     213.0,       1.5);         ( 565535.6, 4191133.6,      86.8,     213.0,       1.5);
( 565545.6, 4191133.6,      87.4,     213.0,       1.5);         ( 565555.6, 4191133.6,      88.0,     213.0,       1.5);
( 565565.6, 4191133.6,      88.3,     213.0,       1.5);         ( 565575.6, 4191133.6,      88.6,     213.0,       1.5);
( 565585.6, 4191133.6,      89.0,     213.0,       1.5);         ( 565595.6, 4191133.6,      89.7,     213.0,       1.5);
( 565605.6, 4191133.6,      90.4,     213.0,       1.5);         ( 565615.6, 4191133.6,      90.9,     213.0,       1.5);
( 565645.6, 4191133.6,      91.1,     213.0,       1.5);         ( 565655.6, 4191133.6,      91.8,     213.0,       1.5);
( 565665.6, 4191133.6,      92.4,     213.0,       1.5);         ( 565675.6, 4191133.6,      93.0,     213.0,       1.5);
( 565685.6, 4191133.6,      93.3,     213.0,       1.5);         ( 565695.6, 4191133.6,      93.6,     213.0,       1.5);
( 565705.6, 4191133.6,      94.0,     213.0,       1.5);         ( 565715.6, 4191133.6,      94.3,     213.0,       1.5);
( 565025.6, 4191143.6,      68.2,     213.0,       1.5);         ( 565035.6, 4191143.6,      68.2,     213.0,       1.5);
( 565045.6, 4191143.6,      68.3,     213.0,       1.5);         ( 565055.6, 4191143.6,      68.6,     213.0,       1.5);
( 565065.6, 4191143.6,      69.0,     213.0,       1.5);         ( 565075.6, 4191143.6,      69.2,     213.0,       1.5);
( 565085.6, 4191143.6,      69.2,     213.0,       1.5);         ( 565095.6, 4191143.6,      69.2,     213.0,       1.5);
( 565125.6, 4191143.6,      70.0,     213.0,       1.5);         ( 565135.6, 4191143.6,      70.3,     213.0,       1.5);
( 565145.6, 4191143.6,      70.6,     213.0,       1.5);         ( 565155.6, 4191143.6,      71.0,     213.0,       1.5);
( 565165.6, 4191143.6,      71.3,     213.0,       1.5);         ( 565175.6, 4191143.6,      71.6,     213.0,       1.5);
( 565185.6, 4191143.6,      72.0,     213.0,       1.5);         ( 565195.6, 4191143.6,      72.3,     213.0,       1.5);
( 565205.6, 4191143.6,      72.5,     213.0,       1.5);         ( 565245.6, 4191143.6,      73.7,     213.0,       1.5);
( 565265.6, 4191143.6,      74.5,     213.0,       1.5);         ( 565485.6, 4191143.6,      84.2,     213.0,       1.5);
( 565495.6, 4191143.6,      84.6,     213.0,       1.5);         ( 565525.6, 4191143.6,      86.4,     213.0,       1.5);
( 565535.6, 4191143.6,      87.0,     213.0,       1.5);         ( 565545.6, 4191143.6,      87.7,     213.0,       1.5);
( 565555.6, 4191143.6,      88.3,     213.0,       1.5);         ( 565565.6, 4191143.6,      88.6,     213.0,       1.5);
( 565575.6, 4191143.6,      89.0,     213.0,       1.5);         ( 565585.6, 4191143.6,      89.4,     213.0,       1.5);
```



*** MODELOPTs:  RegDFAULT  CONC  ELEV  FLGPOL  URBAN

*** DISCRETE CARTESIAN RECEPTORS ***

(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

```
    ( 565595.6, 4191143.6,      90.0,     213.0,       1.5);         ( 565605.6, 4191143.6,      90.7,     213.0,       1.5);
    ( 565615.6, 4191143.6,      91.2,     213.0,       1.5);         ( 565645.6, 4191143.6,      91.4,     213.0,       1.5);
    ( 565655.6, 4191143.6,      92.0,     213.0,       1.5);         ( 565665.6, 4191143.6,      92.5,     213.0,       1.5);
    ( 565675.6, 4191143.6,      93.1,     213.0,       1.5);         ( 565685.6, 4191143.6,      93.5,     213.0,       1.5);
    ( 565695.6, 4191143.6,      93.9,     213.0,       1.5);         ( 565705.6, 4191143.6,      94.3,     213.0,       1.5);
    ( 565715.6, 4191143.6,      94.6,     213.0,       1.5);         ( 565025.6, 4191153.6,      68.6,     213.0,       1.5);
    ( 565035.6, 4191153.6,      68.6,     213.0,       1.5);         ( 565045.6, 4191153.6,      68.6,     213.0,       1.5);
    ( 565055.6, 4191153.6,      69.0,     213.0,       1.5);         ( 565065.6, 4191153.6,      69.3,     213.0,       1.5);
    ( 565075.6, 4191153.6,      69.6,     213.0,       1.5);         ( 565085.6, 4191153.6,      69.6,     213.0,       1.5);
    ( 565095.6, 4191153.6,      69.6,     213.0,       1.5);         ( 565105.6, 4191153.6,      69.6,     213.0,       1.5);
    ( 565115.6, 4191153.6,      70.0,     213.0,       1.5);         ( 565125.6, 4191153.6,      70.3,     213.0,       1.5);
    ( 565135.6, 4191153.6,      70.6,     213.0,       1.5);         ( 565145.6, 4191153.6,      71.0,     213.0,       1.5);
    ( 565155.6, 4191153.6,      71.3,     213.0,       1.5);         ( 565165.6, 4191153.6,      71.6,     213.0,       1.5);
    ( 565175.6, 4191153.6,      72.0,     213.0,       1.5);         ( 565185.6, 4191153.6,      72.3,     213.0,       1.5);
    ( 565195.6, 4191153.6,      72.6,     213.0,       1.5);         ( 565205.6, 4191153.6,      72.8,     213.0,       1.5);
    ( 565265.6, 4191153.6,      74.6,     213.0,       1.5);         ( 565525.6, 4191153.6,      86.7,     213.0,       1.5);
    ( 565535.6, 4191153.6,      87.4,     213.0,       1.5);         ( 565545.6, 4191153.6,      88.0,     213.0,       1.5);
    ( 565555.6, 4191153.6,      88.6,     213.0,       1.5);         ( 565565.6, 4191153.6,      89.0,     213.0,       1.5);
    ( 565575.6, 4191153.6,      89.3,     213.0,       1.5);         ( 565585.6, 4191153.6,      89.7,     213.0,       1.5);
    ( 565595.6, 4191153.6,      90.4,     213.0,       1.5);         ( 565605.6, 4191153.6,      91.0,     213.0,       1.5);
    ( 565615.6, 4191153.6,      91.6,     213.0,       1.5);         ( 565645.6, 4191153.6,      91.7,     213.0,       1.5);
    ( 565655.6, 4191153.6,      92.1,     213.0,       1.5);         ( 565665.6, 4191153.6,      92.6,     213.0,       1.5);
    ( 565675.6, 4191153.6,      93.1,     213.0,       1.5);         ( 565685.6, 4191153.6,      93.6,     213.0,       1.5);
    ( 565695.6, 4191153.6,      94.2,     213.0,       1.5);         ( 565705.6, 4191153.6,      94.6,     213.0,       1.5);
    ( 565715.6, 4191153.6,      95.0,     213.0,       1.5);         ( 565025.6, 4191163.6,      68.9,     213.0,       1.5);
    ( 565035.6, 4191163.6,      68.9,     213.0,       1.5);         ( 565045.6, 4191163.6,      69.0,     213.0,       1.5);
    ( 565055.6, 4191163.6,      69.3,     213.0,       1.5);         ( 565065.6, 4191163.6,      69.6,     213.0,       1.5);
    ( 565075.6, 4191163.6,      69.9,     213.0,       1.5);         ( 565085.6, 4191163.6,      69.9,     213.0,       1.5);
    ( 565095.6, 4191163.6,      69.9,     213.0,       1.5);         ( 565105.6, 4191163.6,      70.0,     213.0,       1.5);
    ( 565115.6, 4191163.6,      70.3,     213.0,       1.5);         ( 565125.6, 4191163.6,      70.6,     213.0,       1.5);
    ( 565135.6, 4191163.6,      71.0,     213.0,       1.5);         ( 565145.6, 4191163.6,      71.3,     213.0,       1.5);
    ( 565155.6, 4191163.6,      71.6,     213.0,       1.5);         ( 565165.6, 4191163.6,      72.0,     213.0,       1.5);
    ( 565265.6, 4191163.6,      74.8,     213.0,       1.5);         ( 565575.6, 4191163.6,      89.6,     213.0,       1.5);
    ( 565585.6, 4191163.6,      90.0,     213.0,       1.5);         ( 565595.6, 4191163.6,      90.7,     213.0,       1.5);
    ( 565605.6, 4191163.6,      91.4,     213.0,       1.5);         ( 565615.6, 4191163.6,      91.9,     213.0,       1.5);
    ( 565645.6, 4191163.6,      92.0,     213.0,       1.5);         ( 565655.6, 4191163.6,      92.3,     213.0,       1.5);
    ( 565665.6, 4191163.6,      92.7,     213.0,       1.5);         ( 565675.6, 4191163.6,      93.1,     213.0,       1.5);
    ( 565685.6, 4191163.6,      93.8,     213.0,       1.5);         ( 565695.6, 4191163.6,      94.4,     213.0,       1.5);
    ( 565705.6, 4191163.6,      95.0,     213.0,       1.5);         ( 565715.6, 4191163.6,      95.3,     213.0,       1.5);
    ( 565025.6, 4191173.6,      69.2,     213.0,       1.5);         ( 565035.6, 4191173.6,      69.2,     213.0,       1.5);
    ( 565045.6, 4191173.6,      69.3,     213.0,       1.5);         ( 565055.6, 4191173.6,      69.6,     213.0,       1.5);
    ( 565065.6, 4191173.6,      70.0,     213.0,       1.5);         ( 565075.6, 4191173.6,      70.2,     213.0,       1.5);
    ( 565085.6, 4191173.6,      70.2,     213.0,       1.5);         ( 565095.6, 4191173.6,      70.2,     213.0,       1.5);
    ( 565105.6, 4191173.6,      70.3,     213.0,       1.5);         ( 565115.6, 4191173.6,      70.6,     213.0,       1.5);
    ( 565125.6, 4191173.6,      71.0,     213.0,       1.5);         ( 565135.6, 4191173.6,      71.3,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
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*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                    *** DISCRETE CARTESIAN RECEPTORS ***
                (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                              (METERS)

( 565145.6, 4191173.6,      71.6,     213.0,       1.5);         ( 565155.6, 4191173.6,      72.0,     213.0,       1.5);
( 565165.6, 4191173.6,      72.3,     213.0,       1.5);         ( 565495.6, 4191173.6,      86.1,     213.0,       1.5);
( 565505.6, 4191173.6,      86.5,     213.0,       1.5);         ( 565515.6, 4191173.6,      86.9,     213.0,       1.5);
( 565525.6, 4191173.6,      87.4,     213.0,       1.5);         ( 565535.6, 4191173.6,      88.0,     213.0,       1.5);
( 565545.6, 4191173.6,      88.5,     213.0,       1.5);         ( 565675.6, 4191173.6,      93.4,     213.0,       1.5);
( 565685.6, 4191173.6,      94.0,     213.0,       1.5);         ( 565695.6, 4191173.6,      94.5,     213.0,       1.5);
( 565705.6, 4191173.6,      95.1,     213.0,       1.5);         ( 565715.6, 4191173.6,      95.5,     213.0,       1.5);
( 564955.6, 4191183.6,      68.0,     213.0,       1.5);         ( 564965.6, 4191183.6,      68.2,     213.0,       1.5);
( 564975.6, 4191183.6,      68.4,     213.0,       1.5);         ( 564985.6, 4191183.6,      68.6,     213.0,       1.5);
( 564995.6, 4191183.6,      69.0,     213.0,       1.5);         ( 565125.6, 4191183.6,      71.3,     213.0,       1.5);
( 565135.6, 4191183.6,      71.6,     213.0,       1.5);         ( 565145.6, 4191183.6,      72.0,     213.0,       1.5);
( 565155.6, 4191183.6,      72.3,     213.0,       1.5);         ( 565165.6, 4191183.6,      72.6,     213.0,       1.5);
( 565495.6, 4191183.6,      86.1,     213.0,       1.5);         ( 565505.6, 4191183.6,      86.6,     213.0,       1.5);
( 565515.6, 4191183.6,      87.2,     213.0,       1.5);         ( 565525.6, 4191183.6,      87.7,     213.0,       1.5);
( 565535.6, 4191183.6,      88.1,     213.0,       1.5);         ( 565545.6, 4191183.6,      88.6,     213.0,       1.5);
( 565555.6, 4191183.6,      89.1,     213.0,       1.5);         ( 565565.6, 4191183.6,      89.6,     213.0,       1.5);
( 565575.6, 4191183.6,      90.2,     213.0,       1.5);         ( 565585.6, 4191183.6,      90.7,     213.0,       1.5);
( 565595.6, 4191183.6,      91.1,     213.0,       1.5);         ( 564955.6, 4191193.6,      68.1,     213.0,       1.5);
( 564965.6, 4191193.6,      68.4,     213.0,       1.5);         ( 564975.6, 4191193.6,      68.7,     213.0,       1.5);
( 564985.6, 4191193.6,      69.0,     213.0,       1.5);         ( 564995.6, 4191193.6,      69.3,     213.0,       1.5);
( 565165.6, 4191193.6,      72.9,     213.0,       1.5);         ( 565495.6, 4191193.6,      86.1,     213.0,       1.5);
( 565505.6, 4191193.6,      86.8,     213.0,       1.5);         ( 565515.6, 4191193.6,      87.4,     213.0,       1.5);
( 565525.6, 4191193.6,      88.0,     213.0,       1.5);         ( 565535.6, 4191193.6,      88.3,     213.0,       1.5);
( 565545.6, 4191193.6,      88.7,     213.0,       1.5);         ( 565555.6, 4191193.6,      89.1,     213.0,       1.5);
( 565565.6, 4191193.6,      89.8,     213.0,       1.5);         ( 565575.6, 4191193.6,      90.4,     213.0,       1.5);
( 565585.6, 4191193.6,      91.0,     213.0,       1.5);         ( 565595.6, 4191193.6,      91.3,     213.0,       1.5);
( 565605.6, 4191193.6,      91.7,     213.0,       1.5);         ( 565615.6, 4191193.6,      92.1,     213.0,       1.5);
( 564955.6, 4191203.6,      68.3,     213.0,       1.5);         ( 564965.6, 4191203.6,      68.6,     213.0,       1.5);
( 564975.6, 4191203.6,      69.0,     213.0,       1.5);         ( 564985.6, 4191203.6,      69.3,     213.0,       1.5);
( 564995.6, 4191203.6,      69.6,     213.0,       1.5);         ( 565085.6, 4191203.6,      71.2,     213.0,       1.5);
( 565495.6, 4191203.6,      86.4,     213.0,       1.5);         ( 565505.6, 4191203.6,      87.0,     213.0,       1.5);
( 565655.6, 4191203.6,      93.5,     213.0,       1.5);         ( 565665.6, 4191203.6,      93.9,     213.0,       1.5);
( 565675.6, 4191203.6,      94.3,     213.0,       1.5);         ( 565685.6, 4191203.6,      94.6,     213.0,       1.5);
( 565695.6, 4191203.6,      95.0,     213.0,       1.5);         ( 565705.6, 4191203.6,      95.4,     213.0,       1.5);
( 564955.6, 4191213.6,      68.6,     213.0,       1.5);         ( 564965.6, 4191213.6,      69.0,     213.0,       1.5);
( 564975.6, 4191213.6,      69.3,     213.0,       1.5);         ( 564985.6, 4191213.6,      69.6,     213.0,       1.5);
( 565085.6, 4191213.6,      71.6,     213.0,       1.5);         ( 565095.6, 4191213.6,      71.6,     213.0,       1.5);
( 565125.6, 4191213.6,      72.3,     213.0,       1.5);         ( 565135.6, 4191213.6,      72.6,     213.0,       1.5);
( 565145.6, 4191213.6,      72.8,     213.0,       1.5);         ( 565155.6, 4191213.6,      72.9,     213.0,       1.5);
( 565165.6, 4191213.6,      73.0,     213.0,       1.5);         ( 565175.6, 4191213.6,      73.2,     213.0,       1.5);
( 565185.6, 4191213.6,      73.4,     213.0,       1.5);         ( 565195.6, 4191213.6,      73.6,     213.0,       1.5);
( 565655.6, 4191213.6,      93.6,     213.0,       1.5);         ( 565665.6, 4191213.6,      94.2,     213.0,       1.5);
( 565675.6, 4191213.6,      94.6,     213.0,       1.5);         ( 565685.6, 4191213.6,      95.0,     213.0,       1.5);
( 565695.6, 4191213.6,      95.3,     213.0,       1.5);         ( 565705.6, 4191213.6,      95.7,     213.0,       1.5);
( 564955.6, 4191223.6,      69.0,     213.0,       1.5);         ( 564965.6, 4191223.6,      69.3,     213.0,       1.5);
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                     PAGE 111
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

    ( 564975.6, 4191223.6,      69.6,     213.0,       1.5);         ( 564985.6, 4191223.6,      70.0,     213.0,       1.5);
    ( 565085.6, 4191223.6,      71.9,     213.0,       1.5);         ( 565095.6, 4191223.6,      71.9,     213.0,       1.5);
    ( 565125.6, 4191223.6,      72.6,     213.0,       1.5);         ( 565135.6, 4191223.6,      72.9,     213.0,       1.5);
    ( 565145.6, 4191223.6,      72.9,     213.0,       1.5);         ( 565155.6, 4191223.6,      73.0,     213.0,       1.5);
    ( 565165.6, 4191223.6,      73.1,     213.0,       1.5);         ( 565175.6, 4191223.6,      73.4,     213.0,       1.5);
    ( 565185.6, 4191223.6,      73.7,     213.0,       1.5);         ( 565195.6, 4191223.6,      74.0,     213.0,       1.5);
    ( 565215.6, 4191223.6,      74.6,     213.0,       1.5);         ( 565225.6, 4191223.6,      75.0,     213.0,       1.5);
    ( 565595.6, 4191223.6,      91.4,     213.0,       1.5);         ( 565605.6, 4191223.6,      91.7,     213.0,       1.5);
    ( 565675.6, 4191223.6,      95.0,     213.0,       1.5);         ( 565685.6, 4191223.6,      95.3,     213.0,       1.5);
    ( 565695.6, 4191223.6,      95.6,     213.0,       1.5);         ( 565705.6, 4191223.6,      96.0,     213.0,       1.5);
    ( 564955.6, 4191233.6,      69.3,     213.0,       1.5);         ( 564965.6, 4191233.6,      69.5,     213.0,       1.5);
    ( 564975.6, 4191233.6,      69.8,     213.0,       1.5);         ( 564985.6, 4191233.6,      70.1,     213.0,       1.5);
    ( 565075.6, 4191233.6,      72.2,     213.0,       1.5);         ( 565085.6, 4191233.6,      72.2,     213.0,       1.5);
    ( 565095.6, 4191233.6,      72.2,     213.0,       1.5);         ( 565125.6, 4191233.6,      72.8,     213.0,       1.5);
    ( 565135.6, 4191233.6,      73.0,     213.0,       1.5);         ( 565145.6, 4191233.6,      73.1,     213.0,       1.5);
    ( 565155.6, 4191233.6,      73.2,     213.0,       1.5);         ( 565165.6, 4191233.6,      73.3,     213.0,       1.5);
    ( 565175.6, 4191233.6,      73.6,     213.0,       1.5);         ( 565185.6, 4191233.6,      74.0,     213.0,       1.5);
    ( 565195.6, 4191233.6,      74.3,     213.0,       1.5);         ( 565215.6, 4191233.6,      75.0,     213.0,       1.5);
    ( 565225.6, 4191233.6,      75.3,     213.0,       1.5);         ( 565235.6, 4191233.6,      75.6,     213.0,       1.5);
    ( 565245.6, 4191233.6,      76.0,     213.0,       1.5);         ( 565255.6, 4191233.6,      76.3,     213.0,       1.5);
    ( 565265.6, 4191233.6,      76.6,     213.0,       1.5);         ( 565275.6, 4191233.6,      77.0,     213.0,       1.5);
    ( 565285.6, 4191233.6,      77.3,     213.0,       1.5);         ( 565295.6, 4191233.6,      77.6,     213.0,       1.5);
    ( 565485.6, 4191233.6,      86.5,     213.0,       1.5);         ( 565495.6, 4191233.6,      87.1,     213.0,       1.5);
    ( 565505.6, 4191233.6,      87.4,     213.0,       1.5);         ( 565515.6, 4191233.6,      87.7,     213.0,       1.5);
    ( 565525.6, 4191233.6,      88.1,     213.0,       1.5);         ( 565535.6, 4191233.6,      88.8,     213.0,       1.5);
    ( 565545.6, 4191233.6,      89.5,     213.0,       1.5);         ( 565555.6, 4191233.6,      90.1,     213.0,       1.5);
    ( 565565.6, 4191233.6,      90.4,     213.0,       1.5);         ( 565575.6, 4191233.6,      90.7,     213.0,       1.5);
    ( 565585.6, 4191233.6,      91.1,     213.0,       1.5);         ( 565595.6, 4191233.6,      91.5,     213.0,       1.5);
    ( 565605.6, 4191233.6,      91.9,     213.0,       1.5);         ( 565695.6, 4191233.6,      95.7,     213.0,       1.5);
    ( 565705.6, 4191233.6,      96.1,     213.0,       1.5);         ( 564955.6, 4191243.6,      69.6,     213.0,       1.5);
    ( 564965.6, 4191243.6,      69.8,     213.0,       1.5);         ( 564975.6, 4191243.6,      69.9,     213.0,       1.5);
    ( 564985.6, 4191243.6,      70.1,     213.0,       1.5);         ( 565025.6, 4191243.6,      71.2,     213.0,       1.5);
    ( 565035.6, 4191243.6,      71.4,     213.0,       1.5);         ( 565045.6, 4191243.6,      71.6,     213.0,       1.5);
    ( 565125.6, 4191243.6,      72.9,     213.0,       1.5);         ( 565135.6, 4191243.6,      73.0,     213.0,       1.5);
    ( 565145.6, 4191243.6,      73.2,     213.0,       1.5);         ( 565155.6, 4191243.6,      73.4,     213.0,       1.5);
    ( 565165.6, 4191243.6,      73.6,     213.0,       1.5);         ( 565175.6, 4191243.6,      74.0,     213.0,       1.5);
    ( 565185.6, 4191243.6,      74.3,     213.0,       1.5);         ( 565215.6, 4191243.6,      75.3,     213.0,       1.5);
    ( 565225.6, 4191243.6,      75.6,     213.0,       1.5);         ( 565235.6, 4191243.6,      76.0,     213.0,       1.5);
    ( 565245.6, 4191243.6,      76.3,     213.0,       1.5);         ( 565255.6, 4191243.6,      76.6,     213.0,       1.5);
    ( 565265.6, 4191243.6,      77.0,     213.0,       1.5);         ( 565485.6, 4191243.6,      86.6,     213.0,       1.5);
    ( 565495.6, 4191243.6,      87.1,     213.0,       1.5);         ( 565505.6, 4191243.6,      87.4,     213.0,       1.5);
    ( 565515.6, 4191243.6,      87.7,     213.0,       1.5);         ( 565525.6, 4191243.6,      88.1,     213.0,       1.5);
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    ( 565535.6, 4191243.6,      88.8,     213.0,       1.5);         ( 565545.6, 4191243.6,      89.5,     213.0,       1.5);
    ( 565555.6, 4191243.6,      90.1,     213.0,       1.5);         ( 565565.6, 4191243.6,      90.4,     213.0,       1.5);
    ( 565575.6, 4191243.6,      90.7,     213.0,       1.5);         ( 565585.6, 4191243.6,      91.1,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 112
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

    ( 565595.6, 4191243.6,      91.6,     213.0,       1.5);         ( 565605.6, 4191243.6,      92.2,     213.0,       1.5);
    ( 565625.6, 4191243.6,      93.0,     213.0,       1.5);         ( 565635.6, 4191243.6,      93.3,     213.0,       1.5);
    ( 565645.6, 4191243.6,      93.7,     213.0,       1.5);         ( 564955.6, 4191253.6,      69.9,     213.0,       1.5);
    ( 564965.6, 4191253.6,      69.9,     213.0,       1.5);         ( 564975.6, 4191253.6,      70.0,     213.0,       1.5);
    ( 564985.6, 4191253.6,      70.1,     213.0,       1.5);         ( 565025.6, 4191253.6,      71.4,     213.0,       1.5);
    ( 565035.6, 4191253.6,      71.7,     213.0,       1.5);         ( 565045.6, 4191253.6,      72.0,     213.0,       1.5);
    ( 565055.6, 4191253.6,      72.3,     213.0,       1.5);         ( 565065.6, 4191253.6,      72.6,     213.0,       1.5);
    ( 565105.6, 4191253.6,      72.9,     213.0,       1.5);         ( 565115.6, 4191253.6,      72.9,     213.0,       1.5);
    ( 565125.6, 4191253.6,      73.0,     213.0,       1.5);         ( 565135.6, 4191253.6,      73.1,     213.0,       1.5);
    ( 565145.6, 4191253.6,      73.4,     213.0,       1.5);         ( 565155.6, 4191253.6,      73.7,     213.0,       1.5);
    ( 565165.6, 4191253.6,      74.0,     213.0,       1.5);         ( 565175.6, 4191253.6,      74.3,     213.0,       1.5);
    ( 565185.6, 4191253.6,      74.6,     213.0,       1.5);         ( 565215.6, 4191253.6,      75.6,     213.0,       1.5);
    ( 565225.6, 4191253.6,      76.0,     213.0,       1.5);         ( 565235.6, 4191253.6,      76.3,     213.0,       1.5);
    ( 565245.6, 4191253.6,      76.6,     213.0,       1.5);         ( 565255.6, 4191253.6,      77.0,     213.0,       1.5);
    ( 565265.6, 4191253.6,      77.3,     213.0,       1.5);         ( 565275.6, 4191253.6,      77.6,     213.0,       1.5);
    ( 565285.6, 4191253.6,      78.0,     213.0,       1.5);         ( 565295.6, 4191253.6,      78.3,     213.0,       1.5);
    ( 565415.6, 4191253.6,      83.3,     213.0,       1.5);         ( 565425.6, 4191253.6,      83.7,     213.0,       1.5);
    ( 565435.6, 4191253.6,      84.1,     213.0,       1.5);         ( 565535.6, 4191253.6,      88.8,     213.0,       1.5);
    ( 565545.6, 4191253.6,      89.5,     213.0,       1.5);         ( 565555.6, 4191253.6,      90.1,     213.0,       1.5);
    ( 565565.6, 4191253.6,      90.4,     213.0,       1.5);         ( 565575.6, 4191253.6,      90.7,     213.0,       1.5);
    ( 565585.6, 4191253.6,      91.1,     213.0,       1.5);         ( 565595.6, 4191253.6,      91.8,     213.0,       1.5);
    ( 565605.6, 4191253.6,      92.4,     213.0,       1.5);         ( 565625.6, 4191253.6,      93.3,     213.0,       1.5);
    ( 565635.6, 4191253.6,      93.6,     213.0,       1.5);         ( 565645.6, 4191253.6,      94.0,     213.0,       1.5);
    ( 565655.6, 4191253.6,      94.3,     213.0,       1.5);         ( 565665.6, 4191253.6,      94.7,     213.0,       1.5);
    ( 565675.6, 4191253.6,      95.1,     213.0,       1.5);         ( 565685.6, 4191253.6,      95.4,     213.0,       1.5);
    ( 565695.6, 4191253.6,      95.7,     213.0,       1.5);         ( 565705.6, 4191253.6,      96.1,     213.0,       1.5);
    ( 564955.6, 4191263.6,      70.0,     213.0,       1.5);         ( 564965.6, 4191263.6,      70.1,     213.0,       1.5);
    ( 564975.6, 4191263.6,      70.2,     213.0,       1.5);         ( 564985.6, 4191263.6,      70.3,     213.0,       1.5);
    ( 565025.6, 4191263.6,      71.6,     213.0,       1.5);         ( 565035.6, 4191263.6,      72.0,     213.0,       1.5);
    ( 565045.6, 4191263.6,      72.3,     213.0,       1.5);         ( 565055.6, 4191263.6,      72.6,     213.0,       1.5);
    ( 565065.6, 4191263.6,      73.0,     213.0,       1.5);         ( 565075.6, 4191263.6,      73.2,     213.0,       1.5);
    ( 565085.6, 4191263.6,      73.2,     213.0,       1.5);         ( 565095.6, 4191263.6,      73.2,     213.0,       1.5);
    ( 565105.6, 4191263.6,      73.2,     213.0,       1.5);         ( 565115.6, 4191263.6,      73.2,     213.0,       1.5);
    ( 565125.6, 4191263.6,      73.2,     213.0,       1.5);         ( 565135.6, 4191263.6,      73.3,     213.0,       1.5);
    ( 565145.6, 4191263.6,      73.6,     213.0,       1.5);         ( 565155.6, 4191263.6,      74.0,     213.0,       1.5);
    ( 565165.6, 4191263.6,      74.3,     213.0,       1.5);         ( 565175.6, 4191263.6,      74.6,     213.0,       1.5);
    ( 565185.6, 4191263.6,      75.0,     213.0,       1.5);         ( 565215.6, 4191263.6,      76.0,     213.0,       1.5);
    ( 565225.6, 4191263.6,      76.3,     213.0,       1.5);         ( 565235.6, 4191263.6,      76.6,     213.0,       1.5);
    ( 565245.6, 4191263.6,      77.0,     213.0,       1.5);         ( 565255.6, 4191263.6,      77.3,     213.0,       1.5);
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    ( 565265.6, 4191263.6,      77.5,     213.0,       1.5);         ( 565285.6, 4191263.6,      78.1,     213.0,       1.5);
    ( 565295.6, 4191263.6,      78.4,     213.0,       1.5);         ( 565415.6, 4191263.6,      83.5,     213.0,       1.5);
    ( 565425.6, 4191263.6,      83.9,     213.0,       1.5);         ( 565435.6, 4191263.6,      84.4,     213.0,       1.5);
    ( 565445.6, 4191263.6,      85.0,     213.0,       1.5);         ( 565575.6, 4191263.6,      90.9,     213.0,       1.5);
    ( 565585.6, 4191263.6,      91.4,     213.0,       1.5);         ( 565595.6, 4191263.6,      92.0,     213.0,       1.5);
    ( 565625.6, 4191263.6,      93.4,     213.0,       1.5);         ( 565635.6, 4191263.6,      93.7,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 113
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                      (METERS)

    ( 565645.6, 4191263.6,      94.1,     213.0,       1.5);         ( 565655.6, 4191263.6,      94.5,     213.0,       1.5);
    ( 565665.6, 4191263.6,      94.9,     213.0,       1.5);         ( 565675.6, 4191263.6,      95.3,     213.0,       1.5);
    ( 565685.6, 4191263.6,      95.6,     213.0,       1.5);         ( 565695.6, 4191263.6,      96.0,     213.0,       1.5);
    ( 565705.6, 4191263.6,      96.4,     213.0,       1.5);         ( 565065.6, 4191273.6,      73.3,     213.0,       1.5);
    ( 565075.6, 4191273.6,      73.6,     213.0,       1.5);         ( 565085.6, 4191273.6,      73.6,     213.0,       1.5);
    ( 565095.6, 4191273.6,      73.6,     213.0,       1.5);         ( 565105.6, 4191273.6,      73.6,     213.0,       1.5);
    ( 565115.6, 4191273.6,      73.6,     213.0,       1.5);         ( 565125.6, 4191273.6,      73.6,     213.0,       1.5);
    ( 565135.6, 4191273.6,      73.6,     213.0,       1.5);         ( 565145.6, 4191273.6,      74.0,     213.0,       1.5);
    ( 565155.6, 4191273.6,      74.3,     213.0,       1.5);         ( 565165.6, 4191273.6,      74.6,     213.0,       1.5);
    ( 565175.6, 4191273.6,      75.0,     213.0,       1.5);         ( 565185.6, 4191273.6,      75.3,     213.0,       1.5);
    ( 565205.6, 4191273.6,      76.0,     213.0,       1.5);         ( 565215.6, 4191273.6,      76.3,     213.0,       1.5);
    ( 565225.6, 4191273.6,      76.6,     213.0,       1.5);         ( 565235.6, 4191273.6,      77.0,     213.0,       1.5);
    ( 565245.6, 4191273.6,      77.3,     213.0,       1.5);         ( 565255.6, 4191273.6,      77.6,     213.0,       1.5);
    ( 565265.6, 4191273.6,      77.8,     213.0,       1.5);         ( 565285.6, 4191273.6,      78.1,     213.0,       1.5);
    ( 565415.6, 4191273.6,      83.6,     213.0,       1.5);         ( 565425.6, 4191273.6,      84.2,     213.0,       1.5);
    ( 565435.6, 4191273.6,      84.7,     213.0,       1.5);         ( 565445.6, 4191273.6,      85.1,     213.0,       1.5);
    ( 565665.6, 4191273.6,      95.2,     213.0,       1.5);         ( 565675.6, 4191273.6,      95.6,     213.0,       1.5);
    ( 565685.6, 4191273.6,      96.0,     213.0,       1.5);         ( 565695.6, 4191273.6,      96.3,     213.0,       1.5);
    ( 565705.6, 4191273.6,      96.7,     213.0,       1.5);         ( 564975.6, 4191283.6,      70.7,     213.0,       1.5);
    ( 565005.6, 4191283.6,      71.6,     213.0,       1.5);         ( 565015.6, 4191283.6,      72.0,     213.0,       1.5);
    ( 565115.6, 4191283.6,      73.9,     213.0,       1.5);         ( 565125.6, 4191283.6,      73.9,     213.0,       1.5);
    ( 565135.6, 4191283.6,      74.0,     213.0,       1.5);         ( 565145.6, 4191283.6,      74.3,     213.0,       1.5);
    ( 565155.6, 4191283.6,      74.6,     213.0,       1.5);         ( 565165.6, 4191283.6,      75.0,     213.0,       1.5);
    ( 565175.6, 4191283.6,      75.3,     213.0,       1.5);         ( 565185.6, 4191283.6,      75.6,     213.0,       1.5);
    ( 565205.6, 4191283.6,      76.3,     213.0,       1.5);         ( 565215.6, 4191283.6,      76.6,     213.0,       1.5);
    ( 565225.6, 4191283.6,      77.0,     213.0,       1.5);         ( 565235.6, 4191283.6,      77.3,     213.0,       1.5);
    ( 565245.6, 4191283.6,      77.6,     213.0,       1.5);         ( 565255.6, 4191283.6,      77.9,     213.0,       1.5);
    ( 565265.6, 4191283.6,      77.9,     213.0,       1.5);         ( 565285.6, 4191283.6,      78.1,     213.0,       1.5);
    ( 565295.6, 4191283.6,      78.4,     213.0,       1.5);         ( 565305.6, 4191283.6,      78.7,     213.0,       1.5);
    ( 565315.6, 4191283.6,      79.1,     213.0,       1.5);         ( 565625.6, 4191283.6,      93.4,     213.0,       1.5);
    ( 565635.6, 4191283.6,      93.7,     213.0,       1.5);         ( 564975.6, 4191293.6,      71.0,     213.0,       1.5);
    ( 565005.6, 4191293.6,      71.8,     213.0,       1.5);         ( 565015.6, 4191293.6,      72.1,     213.0,       1.5);
    ( 565145.6, 4191293.6,      74.6,     213.0,       1.5);         ( 565155.6, 4191293.6,      75.0,     213.0,       1.5);
    ( 565165.6, 4191293.6,      75.3,     213.0,       1.5);         ( 565175.6, 4191293.6,      75.5,     213.0,       1.5);
    ( 565185.6, 4191293.6,      75.8,     213.0,       1.5);         ( 565205.6, 4191293.6,      76.4,     213.0,       1.5);
    ( 565215.6, 4191293.6,      76.7,     213.0,       1.5);         ( 565225.6, 4191293.6,      77.1,     213.0,       1.5);
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    ( 565235.6, 4191293.6,      77.4,     213.0,       1.5);         ( 565245.6, 4191293.6,      77.7,     213.0,       1.5);
    ( 565255.6, 4191293.6,      78.0,     213.0,       1.5);         ( 565265.6, 4191293.6,      78.1,     213.0,       1.5);
    ( 565285.6, 4191293.6,      78.3,     213.0,       1.5);         ( 565295.6, 4191293.6,      78.6,     213.0,       1.5);
    ( 565305.6, 4191293.6,      79.0,     213.0,       1.5);         ( 565315.6, 4191293.6,      79.4,     213.0,       1.5);
    ( 565625.6, 4191293.6,      93.5,     213.0,       1.5);         ( 565635.6, 4191293.6,      93.9,     213.0,       1.5);
    ( 565645.6, 4191293.6,      94.4,     213.0,       1.5);         ( 565655.6, 4191293.6,      95.0,     213.0,       1.5);
    ( 565665.6, 4191293.6,      95.5,     213.0,       1.5);         ( 565675.6, 4191293.6,      96.1,     213.0,       1.5);
    ( 565685.6, 4191293.6,      96.5,     213.0,       1.5);         ( 565695.6, 4191293.6,      96.9,     213.0,       1.5);
    ( 564975.6, 4191303.6,      71.3,     213.0,       1.5);         ( 565005.6, 4191303.6,      71.9,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 114
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                   (METERS)

    ( 565015.6, 4191303.6,      72.1,     213.0,       1.5);         ( 565085.6, 4191303.6,      74.2,     213.0,       1.5);
    ( 565095.6, 4191303.6,      74.4,     213.0,       1.5);         ( 565105.6, 4191303.6,      74.6,     213.0,       1.5);
    ( 565115.6, 4191303.6,      74.6,     213.0,       1.5);         ( 565205.6, 4191303.6,      76.4,     213.0,       1.5);
    ( 565215.6, 4191303.6,      76.7,     213.0,       1.5);         ( 565225.6, 4191303.6,      77.1,     213.0,       1.5);
    ( 565235.6, 4191303.6,      77.4,     213.0,       1.5);         ( 565245.6, 4191303.6,      77.7,     213.0,       1.5);
    ( 565255.6, 4191303.6,      78.0,     213.0,       1.5);         ( 565265.6, 4191303.6,      78.2,     213.0,       1.5);
    ( 565275.6, 4191303.6,      78.4,     213.0,       1.5);         ( 565285.6, 4191303.6,      78.6,     213.0,       1.5);
    ( 565295.6, 4191303.6,      79.0,     213.0,       1.5);         ( 565305.6, 4191303.6,      79.3,     213.0,       1.5);
    ( 565315.6, 4191303.6,      79.7,     213.0,       1.5);         ( 565625.6, 4191303.6,      93.6,     213.0,       1.5);
    ( 565635.6, 4191303.6,      94.2,     213.0,       1.5);         ( 565645.6, 4191303.6,      94.7,     213.0,       1.5);
    ( 565655.6, 4191303.6,      95.1,     213.0,       1.5);         ( 565665.6, 4191303.6,      95.6,     213.0,       1.5);
    ( 565675.6, 4191303.6,      96.1,     213.0,       1.5);         ( 565685.6, 4191303.6,      96.6,     213.0,       1.5);
    ( 565695.6, 4191303.6,      97.2,     213.0,       1.5);         ( 564975.6, 4191313.6,      71.6,     213.0,       1.5);
    ( 565005.6, 4191313.6,      72.0,     213.0,       1.5);         ( 565015.6, 4191313.6,      72.1,     213.0,       1.5);
    ( 565025.6, 4191313.6,      72.4,     213.0,       1.5);         ( 565035.6, 4191313.6,      72.7,     213.0,       1.5);
    ( 565045.6, 4191313.6,      73.1,     213.0,       1.5);         ( 565055.6, 4191313.6,      73.4,     213.0,       1.5);
    ( 565065.6, 4191313.6,      73.7,     213.0,       1.5);         ( 565075.6, 4191313.6,      74.1,     213.0,       1.5);
    ( 565085.6, 4191313.6,      74.4,     213.0,       1.5);         ( 565095.6, 4191313.6,      74.7,     213.0,       1.5);
    ( 565105.6, 4191313.6,      74.9,     213.0,       1.5);         ( 565115.6, 4191313.6,      74.9,     213.0,       1.5);
    ( 565275.6, 4191313.6,      78.7,     213.0,       1.5);         ( 565285.6, 4191313.6,      79.0,     213.0,       1.5);
    ( 565295.6, 4191313.6,      79.3,     213.0,       1.5);         ( 565305.6, 4191313.6,      79.6,     213.0,       1.5);
    ( 565315.6, 4191313.6,      80.0,     213.0,       1.5);         ( 565615.6, 4191313.6,      93.1,     213.0,       1.5);
    ( 565625.6, 4191313.6,      93.8,     213.0,       1.5);         ( 565635.6, 4191313.6,      94.4,     213.0,       1.5);
    ( 565645.6, 4191313.6,      95.0,     213.0,       1.5);         ( 565655.6, 4191313.6,      95.3,     213.0,       1.5);
    ( 565665.6, 4191313.6,      95.7,     213.0,       1.5);         ( 565675.6, 4191313.6,      96.1,     213.0,       1.5);
    ( 565685.6, 4191313.6,      96.8,     213.0,       1.5);         ( 565695.6, 4191313.6,      97.4,     213.0,       1.5);
    ( 564975.6, 4191323.6,      72.0,     213.0,       1.5);         ( 565005.6, 4191323.6,      72.2,     213.0,       1.5);
    ( 565025.6, 4191323.6,      72.6,     213.0,       1.5);         ( 565035.6, 4191323.6,      73.0,     213.0,       1.5);
    ( 565045.6, 4191323.6,      73.3,     213.0,       1.5);         ( 565055.6, 4191323.6,      73.6,     213.0,       1.5);
    ( 565065.6, 4191323.6,      74.0,     213.0,       1.5);         ( 565075.6, 4191323.6,      74.3,     213.0,       1.5);
    ( 565085.6, 4191323.6,      74.5,     213.0,       1.5);         ( 565615.6, 4191323.6,      93.4,     213.0,       1.5);
    ( 565625.6, 4191323.6,      94.0,     213.0,       1.5);         ( 565635.6, 4191323.6,      94.5,     213.0,       1.5);
    ( 565645.6, 4191323.6,      95.1,     213.0,       1.5);         ( 565655.6, 4191323.6,      95.5,     213.0,       1.5);
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    ( 565665.6, 4191323.6,      95.9,     213.0,       1.5);         ( 565675.6, 4191323.6,      96.4,     213.0,       1.5);
    ( 565685.6, 4191323.6,      97.0,     213.0,       1.5);         ( 565695.6, 4191323.6,      97.7,     213.0,       1.5);
    ( 564975.6, 4191333.6,      72.3,     213.0,       1.5);         ( 565025.6, 4191333.6,      73.0,     213.0,       1.5);
    ( 565035.6, 4191333.6,      73.3,     213.0,       1.5);         ( 565045.6, 4191333.6,      73.6,     213.0,       1.5);
    ( 565055.6, 4191333.6,      74.0,     213.0,       1.5);         ( 565065.6, 4191333.6,      74.3,     213.0,       1.5);
    ( 565075.6, 4191333.6,      74.6,     213.0,       1.5);         ( 565085.6, 4191333.6,      74.8,     213.0,       1.5);
    ( 565235.6, 4191333.6,      78.0,     213.0,       1.5);         ( 565245.6, 4191333.6,      78.3,     213.0,       1.5);
    ( 565255.6, 4191333.6,      78.6,     213.0,       1.5);         ( 565265.6, 4191333.6,      78.8,     213.0,       1.5);
    ( 565275.6, 4191333.6,      78.9,     213.0,       1.5);         ( 565285.6, 4191333.6,      79.1,     213.0,       1.5);
    ( 565295.6, 4191333.6,      79.4,     213.0,       1.5);         ( 565305.6, 4191333.6,      79.7,     213.0,       1.5);
    ( 565615.6, 4191333.6,      93.7,     213.0,       1.5);         ( 565625.6, 4191333.6,      94.1,     213.0,       1.5);
    ( 565635.6, 4191333.6,      94.6,     213.0,       1.5);         ( 565645.6, 4191333.6,      95.1,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 115
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

    ( 565655.6, 4191333.6,      95.6,     213.0,       1.5);         ( 565665.6, 4191333.6,      96.2,     213.0,       1.5);
    ( 565675.6, 4191333.6,      96.7,     213.0,       1.5);         ( 565685.6, 4191333.6,      97.4,     213.0,       1.5);
    ( 565695.6, 4191333.6,      98.0,     213.0,       1.5);         ( 564995.6, 4191343.6,      72.9,     213.0,       1.5);
    ( 565005.6, 4191343.6,      72.9,     213.0,       1.5);         ( 565025.6, 4191343.6,      73.3,     213.0,       1.5);
    ( 565035.6, 4191343.6,      73.6,     213.0,       1.5);         ( 565045.6, 4191343.6,      74.0,     213.0,       1.5);
    ( 565055.6, 4191343.6,      74.3,     213.0,       1.5);         ( 565065.6, 4191343.6,      74.6,     213.0,       1.5);
    ( 565075.6, 4191343.6,      74.9,     213.0,       1.5);         ( 565085.6, 4191343.6,      74.9,     213.0,       1.5);
    ( 565235.6, 4191343.6,      78.3,     213.0,       1.5);         ( 565245.6, 4191343.6,      78.6,     213.0,       1.5);
    ( 565255.6, 4191343.6,      78.9,     213.0,       1.5);         ( 565265.6, 4191343.6,      78.9,     213.0,       1.5);
    ( 565275.6, 4191343.6,      79.0,     213.0,       1.5);         ( 565285.6, 4191343.6,      79.1,     213.0,       1.5);
    ( 565295.6, 4191343.6,      79.4,     213.0,       1.5);         ( 565305.6, 4191343.6,      79.7,     213.0,       1.5);
    ( 565315.6, 4191343.6,      80.1,     213.0,       1.5);         ( 565325.6, 4191343.6,      80.4,     213.0,       1.5);
    ( 565335.6, 4191343.6,      80.7,     213.0,       1.5);         ( 565345.6, 4191343.6,      81.1,     213.0,       1.5);
    ( 565615.6, 4191343.6,      94.0,     213.0,       1.5);         ( 565625.6, 4191343.6,      94.3,     213.0,       1.5);
    ( 565635.6, 4191343.6,      94.7,     213.0,       1.5);         ( 565645.6, 4191343.6,      95.1,     213.0,       1.5);
    ( 565655.6, 4191343.6,      95.8,     213.0,       1.5);         ( 565665.6, 4191343.6,      96.4,     213.0,       1.5);
    ( 565675.6, 4191343.6,      97.0,     213.0,       1.5);         ( 565685.6, 4191343.6,      97.7,     213.0,       1.5);
    ( 564995.6, 4191353.6,      73.2,     213.0,       1.5);         ( 565005.6, 4191353.6,      73.2,     213.0,       1.5);
    ( 565015.6, 4191353.6,      73.3,     213.0,       1.5);         ( 565025.6, 4191353.6,      73.6,     213.0,       1.5);
    ( 565035.6, 4191353.6,      74.0,     213.0,       1.5);         ( 565045.6, 4191353.6,      74.3,     213.0,       1.5);
    ( 565055.6, 4191353.6,      74.5,     213.0,       1.5);         ( 565065.6, 4191353.6,      74.8,     213.0,       1.5);
    ( 565075.6, 4191353.6,      75.0,     213.0,       1.5);         ( 565085.6, 4191353.6,      75.1,     213.0,       1.5);
    ( 565235.6, 4191353.6,      78.5,     213.0,       1.5);         ( 565245.6, 4191353.6,      78.8,     213.0,       1.5);
    ( 565255.6, 4191353.6,      79.0,     213.0,       1.5);         ( 565265.6, 4191353.6,      79.1,     213.0,       1.5);
    ( 565275.6, 4191353.6,      79.2,     213.0,       1.5);         ( 565285.6, 4191353.6,      79.3,     213.0,       1.5);
    ( 565295.6, 4191353.6,      79.6,     213.0,       1.5);         ( 565305.6, 4191353.6,      80.0,     213.0,       1.5);
    ( 565315.6, 4191353.6,      80.3,     213.0,       1.5);         ( 565325.6, 4191353.6,      80.6,     213.0,       1.5);
    ( 565335.6, 4191353.6,      81.0,     213.0,       1.5);         ( 565345.6, 4191353.6,      81.4,     213.0,       1.5);
    ( 565355.6, 4191353.6,      82.0,     213.0,       1.5);         ( 565365.6, 4191353.6,      82.5,     213.0,       1.5);
    ( 565375.6, 4191353.6,      83.1,     213.0,       1.5);         ( 565605.6, 4191353.6,      93.5,     213.0,       1.5);
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    ( 565615.6, 4191353.6,      94.1,     213.0,       1.5);         ( 565625.6, 4191353.6,      94.5,     213.0,       1.5);
    ( 565635.6, 4191353.6,      94.9,     213.0,       1.5);         ( 565645.6, 4191353.6,      95.4,     213.0,       1.5);
    ( 565655.6, 4191353.6,      96.0,     213.0,       1.5);         ( 565665.6, 4191353.6,      96.7,     213.0,       1.5);
    ( 565675.6, 4191353.6,      97.4,     213.0,       1.5);         ( 565685.6, 4191353.6,      98.0,     213.0,       1.5);
    ( 565005.6, 4191363.6,      73.6,     213.0,       1.5);         ( 565015.6, 4191363.6,      73.6,     213.0,       1.5);
    ( 565025.6, 4191363.6,      74.0,     213.0,       1.5);         ( 565035.6, 4191363.6,      74.3,     213.0,       1.5);
    ( 565045.6, 4191363.6,      74.6,     213.0,       1.5);         ( 565055.6, 4191363.6,      74.8,     213.0,       1.5);
    ( 565065.6, 4191363.6,      74.9,     213.0,       1.5);         ( 565075.6, 4191363.6,      75.0,     213.0,       1.5);
    ( 565085.6, 4191363.6,      75.2,     213.0,       1.5);         ( 565095.6, 4191363.6,      75.4,     213.0,       1.5);
    ( 565105.6, 4191363.6,      75.6,     213.0,       1.5);         ( 565195.6, 4191363.6,      77.6,     213.0,       1.5);
    ( 565205.6, 4191363.6,      78.0,     213.0,       1.5);         ( 565215.6, 4191363.6,      78.3,     213.0,       1.5);
    ( 565225.6, 4191363.6,      78.6,     213.0,       1.5);         ( 565235.6, 4191363.6,      78.8,     213.0,       1.5);
    ( 565245.6, 4191363.6,      78.9,     213.0,       1.5);         ( 565255.6, 4191363.6,      79.0,     213.0,       1.5);
    ( 565265.6, 4191363.6,      79.2,     213.0,       1.5);         ( 565275.6, 4191363.6,      79.4,     213.0,       1.5);
    ( 565285.6, 4191363.6,      79.6,     213.0,       1.5);         ( 565295.6, 4191363.6,      80.0,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 116
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

    ( 565305.6, 4191363.6,      80.3,     213.0,       1.5);         ( 565315.6, 4191363.6,      80.6,     213.0,       1.5);
    ( 565325.6, 4191363.6,      81.0,     213.0,       1.5);         ( 565335.6, 4191363.6,      81.3,     213.0,       1.5);
    ( 565345.6, 4191363.6,      81.7,     213.0,       1.5);         ( 565355.6, 4191363.6,      82.1,     213.0,       1.5);
    ( 565365.6, 4191363.6,      82.6,     213.0,       1.5);         ( 565375.6, 4191363.6,      83.1,     213.0,       1.5);
    ( 565405.6, 4191363.6,      84.6,     213.0,       1.5);         ( 565415.6, 4191363.6,      85.0,     213.0,       1.5);
    ( 565425.6, 4191363.6,      85.3,     213.0,       1.5);         ( 565605.6, 4191363.6,      93.5,     213.0,       1.5);
    ( 565615.6, 4191363.6,      94.1,     213.0,       1.5);         ( 565625.6, 4191363.6,      94.6,     213.0,       1.5);
    ( 565635.6, 4191363.6,      95.2,     213.0,       1.5);         ( 565645.6, 4191363.6,      95.7,     213.0,       1.5);
    ( 565655.6, 4191363.6,      96.4,     213.0,       1.5);         ( 565665.6, 4191363.6,      97.0,     213.0,       1.5);
    ( 565675.6, 4191363.6,      97.7,     213.0,       1.5);         ( 565685.6, 4191363.6,      98.1,     213.0,       1.5);
    ( 565075.6, 4191373.6,      75.1,     213.0,       1.5);         ( 565085.6, 4191373.6,      75.4,     213.0,       1.5);
    ( 565095.6, 4191373.6,      75.7,     213.0,       1.5);         ( 565105.6, 4191373.6,      76.0,     213.0,       1.5);
    ( 565195.6, 4191373.6,      78.0,     213.0,       1.5);         ( 565205.6, 4191373.6,      78.3,     213.0,       1.5);
    ( 565215.6, 4191373.6,      78.6,     213.0,       1.5);         ( 565225.6, 4191373.6,      78.9,     213.0,       1.5);
    ( 565235.6, 4191373.6,      78.9,     213.0,       1.5);         ( 565245.6, 4191373.6,      79.0,     213.0,       1.5);
    ( 565255.6, 4191373.6,      79.1,     213.0,       1.5);         ( 565265.6, 4191373.6,      79.4,     213.0,       1.5);
    ( 565275.6, 4191373.6,      79.7,     213.0,       1.5);         ( 565285.6, 4191373.6,      80.0,     213.0,       1.5);
    ( 565295.6, 4191373.6,      80.3,     213.0,       1.5);         ( 565305.6, 4191373.6,      80.6,     213.0,       1.5);
    ( 565315.6, 4191373.6,      81.0,     213.0,       1.5);         ( 565325.6, 4191373.6,      81.3,     213.0,       1.5);
    ( 565335.6, 4191373.6,      81.6,     213.0,       1.5);         ( 565345.6, 4191373.6,      82.0,     213.0,       1.5);
    ( 565355.6, 4191373.6,      82.3,     213.0,       1.5);         ( 565365.6, 4191373.6,      82.7,     213.0,       1.5);
    ( 565375.6, 4191373.6,      83.1,     213.0,       1.5);         ( 565405.6, 4191373.6,      85.0,     213.0,       1.5);
    ( 565415.6, 4191373.6,      85.3,     213.0,       1.5);         ( 565425.6, 4191373.6,      85.6,     213.0,       1.5);
    ( 565465.6, 4191373.6,      87.1,     213.0,       1.5);         ( 565475.6, 4191373.6,      87.4,     213.0,       1.5);
    ( 565485.6, 4191373.6,      87.7,     213.0,       1.5);         ( 565495.6, 4191373.6,      88.1,     213.0,       1.5);
    ( 565505.6, 4191373.6,      88.8,     213.0,       1.5);         ( 565515.6, 4191373.6,      89.4,     213.0,       1.5);
    ( 565525.6, 4191373.6,      90.0,     213.0,       1.5);         ( 565605.6, 4191373.6,      93.5,     213.0,       1.5);
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    ( 565615.6, 4191373.6,      94.1,     213.0,       1.5);         ( 565625.6, 4191373.6,      94.8,     213.0,       1.5);
    ( 565635.6, 4191373.6,      95.4,     213.0,       1.5);         ( 565645.6, 4191373.6,      96.0,     213.0,       1.5);
    ( 565655.6, 4191373.6,      96.7,     213.0,       1.5);         ( 565665.6, 4191373.6,      97.4,     213.0,       1.5);
    ( 565675.6, 4191373.6,      98.0,     213.0,       1.5);         ( 565685.6, 4191373.6,      98.3,     213.0,       1.5);
    ( 565195.6, 4191383.6,      78.3,     213.0,       1.5);         ( 565205.6, 4191383.6,      78.6,     213.0,       1.5);
    ( 565215.6, 4191383.6,      79.0,     213.0,       1.5);         ( 565225.6, 4191383.6,      79.3,     213.0,       1.5);
    ( 565235.6, 4191383.6,      79.3,     213.0,       1.5);         ( 565245.6, 4191383.6,      79.4,     213.0,       1.5);
    ( 565255.6, 4191383.6,      79.5,     213.0,       1.5);         ( 565265.6, 4191383.6,      79.8,     213.0,       1.5);
    ( 565275.6, 4191383.6,      80.0,     213.0,       1.5);         ( 565285.6, 4191383.6,      80.3,     213.0,       1.5);
    ( 565295.6, 4191383.6,      80.6,     213.0,       1.5);         ( 565305.6, 4191383.6,      81.0,     213.0,       1.5);
    ( 565315.6, 4191383.6,      81.3,     213.0,       1.5);         ( 565325.6, 4191383.6,      81.6,     213.0,       1.5);
    ( 565335.6, 4191383.6,      82.0,     213.0,       1.5);         ( 565345.6, 4191383.6,      82.3,     213.0,       1.5);
    ( 565355.6, 4191383.6,      82.6,     213.0,       1.5);         ( 565365.6, 4191383.6,      83.0,     213.0,       1.5);
    ( 565395.6, 4191383.6,      84.7,     213.0,       1.5);         ( 565405.6, 4191383.6,      85.3,     213.0,       1.5);
    ( 565415.6, 4191383.6,      85.6,     213.0,       1.5);         ( 565425.6, 4191383.6,      86.0,     213.0,       1.5);
    ( 565465.6, 4191383.6,      87.3,     213.0,       1.5);         ( 565475.6, 4191383.6,      87.6,     213.0,       1.5);
    ( 565485.6, 4191383.6,      88.0,     213.0,       1.5);         ( 565495.6, 4191383.6,      88.4,     213.0,       1.5);
    ( 565505.6, 4191383.6,      89.0,     213.0,       1.5);         ( 565515.6, 4191383.6,      89.5,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 117
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

    ( 565525.6, 4191383.6,      90.1,     213.0,       1.5);         ( 565535.6, 4191383.6,      90.4,     213.0,       1.5);
    ( 565545.6, 4191383.6,      90.7,     213.0,       1.5);         ( 565555.6, 4191383.6,      91.1,     213.0,       1.5);
    ( 565565.6, 4191383.6,      91.5,     213.0,       1.5);         ( 565575.6, 4191383.6,      91.9,     213.0,       1.5);
    ( 565195.6, 4191393.6,      78.6,     213.0,       1.5);         ( 565205.6, 4191393.6,      79.0,     213.0,       1.5);
    ( 565215.6, 4191393.6,      79.3,     213.0,       1.5);         ( 565225.6, 4191393.6,      79.6,     213.0,       1.5);
    ( 565235.6, 4191393.6,      79.8,     213.0,       1.5);         ( 565245.6, 4191393.6,      80.0,     213.0,       1.5);
    ( 565255.6, 4191393.6,      80.2,     213.0,       1.5);         ( 565265.6, 4191393.6,      80.3,     213.0,       1.5);
    ( 565275.6, 4191393.6,      80.5,     213.0,       1.5);         ( 565285.6, 4191393.6,      80.6,     213.0,       1.5);
    ( 565295.6, 4191393.6,      81.0,     213.0,       1.5);         ( 565305.6, 4191393.6,      81.3,     213.0,       1.5);
    ( 565315.6, 4191393.6,      81.6,     213.0,       1.5);         ( 565325.6, 4191393.6,      82.0,     213.0,       1.5);
    ( 565335.6, 4191393.6,      82.3,     213.0,       1.5);         ( 565345.6, 4191393.6,      82.6,     213.0,       1.5);
    ( 565355.6, 4191393.6,      83.0,     213.0,       1.5);         ( 565365.6, 4191393.6,      83.3,     213.0,       1.5);
    ( 565395.6, 4191393.6,      85.0,     213.0,       1.5);         ( 565405.6, 4191393.6,      85.6,     213.0,       1.5);
    ( 565415.6, 4191393.6,      86.0,     213.0,       1.5);         ( 565425.6, 4191393.6,      86.3,     213.0,       1.5);
    ( 565465.6, 4191393.6,      87.6,     213.0,       1.5);         ( 565475.6, 4191393.6,      88.0,     213.0,       1.5);
    ( 565485.6, 4191393.6,      88.3,     213.0,       1.5);         ( 565495.6, 4191393.6,      88.7,     213.0,       1.5);
    ( 565505.6, 4191393.6,      89.1,     213.0,       1.5);         ( 565515.6, 4191393.6,      89.6,     213.0,       1.5);
    ( 565525.6, 4191393.6,      90.1,     213.0,       1.5);         ( 565535.6, 4191393.6,      90.4,     213.0,       1.5);
    ( 565545.6, 4191393.6,      90.7,     213.0,       1.5);         ( 565555.6, 4191393.6,      91.1,     213.0,       1.5);
    ( 565565.6, 4191393.6,      91.6,     213.0,       1.5);         ( 565575.6, 4191393.6,      92.2,     213.0,       1.5);
    ( 565605.6, 4191393.6,      94.0,     213.0,       1.5);         ( 565615.6, 4191393.6,      94.7,     213.0,       1.5);
    ( 565625.6, 4191393.6,      95.1,     213.0,       1.5);         ( 565635.6, 4191393.6,      95.6,     213.0,       1.5);
    ( 565645.6, 4191393.6,      96.1,     213.0,       1.5);         ( 565655.6, 4191393.6,      96.8,     213.0,       1.5);
    ( 565665.6, 4191393.6,      97.5,     213.0,       1.5);         ( 565035.6, 4191403.6,      75.0,     213.0,       1.5);
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    ( 565045.6, 4191403.6,      75.1,     213.0,       1.5);         ( 565055.6, 4191403.6,      75.4,     213.0,       1.5);
    ( 565065.6, 4191403.6,      75.7,     213.0,       1.5);         ( 565225.6, 4191403.6,      80.0,     213.0,       1.5);
    ( 565235.6, 4191403.6,      80.3,     213.0,       1.5);         ( 565245.6, 4191403.6,      80.6,     213.0,       1.5);
    ( 565255.6, 4191403.6,      80.8,     213.0,       1.5);         ( 565265.6, 4191403.6,      80.8,     213.0,       1.5);
    ( 565275.6, 4191403.6,      80.9,     213.0,       1.5);         ( 565285.6, 4191403.6,      81.0,     213.0,       1.5);
    ( 565295.6, 4191403.6,      81.3,     213.0,       1.5);         ( 565305.6, 4191403.6,      81.6,     213.0,       1.5);
    ( 565315.6, 4191403.6,      82.0,     213.0,       1.5);         ( 565325.6, 4191403.6,      82.3,     213.0,       1.5);
    ( 565335.6, 4191403.6,      82.6,     213.0,       1.5);         ( 565345.6, 4191403.6,      83.0,     213.0,       1.5);
    ( 565355.6, 4191403.6,      83.3,     213.0,       1.5);         ( 565365.6, 4191403.6,      83.6,     213.0,       1.5);
    ( 565395.6, 4191403.6,      85.4,     213.0,       1.5);         ( 565405.6, 4191403.6,      86.0,     213.0,       1.5);
    ( 565415.6, 4191403.6,      86.3,     213.0,       1.5);         ( 565425.6, 4191403.6,      86.6,     213.0,       1.5);
    ( 565435.6, 4191403.6,      87.0,     213.0,       1.5);         ( 565465.6, 4191403.6,      88.0,     213.0,       1.5);
    ( 565565.6, 4191403.6,      91.8,     213.0,       1.5);         ( 565575.6, 4191403.6,      92.4,     213.0,       1.5);
    ( 565605.6, 4191403.6,      94.4,     213.0,       1.5);         ( 565615.6, 4191403.6,      95.0,     213.0,       1.5);
    ( 565625.6, 4191403.6,      95.3,     213.0,       1.5);         ( 565635.6, 4191403.6,      95.7,     213.0,       1.5);
    ( 565645.6, 4191403.6,      96.1,     213.0,       1.5);         ( 565655.6, 4191403.6,      96.8,     213.0,       1.5);
    ( 565035.6, 4191413.6,      75.2,     213.0,       1.5);         ( 565045.6, 4191413.6,      75.3,     213.0,       1.5);
    ( 565055.6, 4191413.6,      75.6,     213.0,       1.5);         ( 565065.6, 4191413.6,      76.0,     213.0,       1.5);
    ( 565075.6, 4191413.6,      76.3,     213.0,       1.5);         ( 565135.6, 4191413.6,      78.3,     213.0,       1.5);
    ( 565145.6, 4191413.6,      78.3,     213.0,       1.5);         ( 565155.6, 4191413.6,      78.4,     213.0,       1.5);
    ( 565285.6, 4191413.6,      81.3,     213.0,       1.5);         ( 565295.6, 4191413.6,      81.6,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 118

*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

    ( 565305.6, 4191413.6,      82.0,     213.0,       1.5);         ( 565315.6, 4191413.6,      82.3,     213.0,       1.5);
    ( 565325.6, 4191413.6,      82.6,     213.0,       1.5);         ( 565335.6, 4191413.6,      83.0,     213.0,       1.5);
    ( 565345.6, 4191413.6,      83.3,     213.0,       1.5);         ( 565355.6, 4191413.6,      83.7,     213.0,       1.5);
    ( 565365.6, 4191413.6,      84.2,     213.0,       1.5);         ( 565395.6, 4191413.6,      85.6,     213.0,       1.5);
    ( 565405.6, 4191413.6,      86.1,     213.0,       1.5);         ( 565415.6, 4191413.6,      86.4,     213.0,       1.5);
    ( 565425.6, 4191413.6,      86.7,     213.0,       1.5);         ( 565435.6, 4191413.6,      87.1,     213.0,       1.5);
    ( 565565.6, 4191413.6,      92.0,     213.0,       1.5);         ( 565575.6, 4191413.6,      92.5,     213.0,       1.5);
    ( 565605.6, 4191413.6,      94.5,     213.0,       1.5);         ( 565615.6, 4191413.6,      95.1,     213.0,       1.5);
    ( 565625.6, 4191413.6,      95.5,     213.0,       1.5);         ( 565635.6, 4191413.6,      95.9,     213.0,       1.5);
    ( 565645.6, 4191413.6,      96.4,     213.0,       1.5);         ( 565655.6, 4191413.6,      97.0,     213.0,       1.5);
    ( 565035.6, 4191423.6,      75.4,     213.0,       1.5);         ( 565045.6, 4191423.6,      75.6,     213.0,       1.5);
    ( 565055.6, 4191423.6,      76.0,     213.0,       1.5);         ( 565065.6, 4191423.6,      76.3,     213.0,       1.5);
    ( 565075.6, 4191423.6,      76.6,     213.0,       1.5);         ( 565135.6, 4191423.6,      78.6,     213.0,       1.5);
    ( 565145.6, 4191423.6,      78.8,     213.0,       1.5);         ( 565155.6, 4191423.6,      79.0,     213.0,       1.5);
    ( 565355.6, 4191423.6,      84.2,     213.0,       1.5);         ( 565365.6, 4191423.6,      84.7,     213.0,       1.5);
    ( 565395.6, 4191423.6,      85.8,     213.0,       1.5);         ( 565405.6, 4191423.6,      86.1,     213.0,       1.5);
    ( 565415.6, 4191423.6,      86.4,     213.0,       1.5);         ( 565425.6, 4191423.6,      86.7,     213.0,       1.5);
    ( 565435.6, 4191423.6,      87.1,     213.0,       1.5);         ( 565505.6, 4191423.6,      89.4,     213.0,       1.5);
    ( 565515.6, 4191423.6,      89.7,     213.0,       1.5);         ( 565525.6, 4191423.6,      90.1,     213.0,       1.5);
    ( 565535.6, 4191423.6,      90.6,     213.0,       1.5);         ( 565545.6, 4191423.6,      91.2,     213.0,       1.5);
    ( 565555.6, 4191423.6,      91.7,     213.0,       1.5);         ( 565565.6, 4191423.6,      92.1,     213.0,       1.5);
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    ( 565575.6, 4191423.6,      92.6,     213.0,       1.5);         ( 565595.6, 4191423.6,      93.8,     213.0,       1.5);
    ( 565605.6, 4191423.6,      94.5,     213.0,       1.5);         ( 565615.6, 4191423.6,      95.1,     213.0,       1.5);
    ( 565625.6, 4191423.6,      95.6,     213.0,       1.5);         ( 565635.6, 4191423.6,      96.2,     213.0,       1.5);
    ( 565645.6, 4191423.6,      96.7,     213.0,       1.5);         ( 565035.6, 4191433.6,      75.7,     213.0,       1.5);
    ( 565045.6, 4191433.6,      76.0,     213.0,       1.5);         ( 565055.6, 4191433.6,      76.3,     213.0,       1.5);
    ( 565065.6, 4191433.6,      76.6,     213.0,       1.5);         ( 565075.6, 4191433.6,      77.0,     213.0,       1.5);
    ( 565135.6, 4191433.6,      79.0,     213.0,       1.5);         ( 565145.6, 4191433.6,      79.3,     213.0,       1.5);
    ( 565155.6, 4191433.6,      79.6,     213.0,       1.5);         ( 565215.6, 4191433.6,      80.0,     213.0,       1.5);
    ( 565225.6, 4191433.6,      80.1,     213.0,       1.5);         ( 565235.6, 4191433.6,      80.8,     213.0,       1.5);
    ( 565245.6, 4191433.6,      81.4,     213.0,       1.5);         ( 565255.6, 4191433.6,      81.9,     213.0,       1.5);
    ( 565395.6, 4191433.6,      86.0,     213.0,       1.5);         ( 565405.6, 4191433.6,      86.1,     213.0,       1.5);
    ( 565415.6, 4191433.6,      86.4,     213.0,       1.5);         ( 565425.6, 4191433.6,      86.7,     213.0,       1.5);
    ( 565435.6, 4191433.6,      87.1,     213.0,       1.5);         ( 565455.6, 4191433.6,      88.4,     213.0,       1.5);
    ( 565465.6, 4191433.6,      88.9,     213.0,       1.5);         ( 565475.6, 4191433.6,      88.9,     213.0,       1.5);
    ( 565485.6, 4191433.6,      89.0,     213.0,       1.5);         ( 565495.6, 4191433.6,      89.1,     213.0,       1.5);
    ( 565505.6, 4191433.6,      89.4,     213.0,       1.5);         ( 565515.6, 4191433.6,      89.7,     213.0,       1.5);
    ( 565525.6, 4191433.6,      90.1,     213.0,       1.5);         ( 565535.6, 4191433.6,      90.8,     213.0,       1.5);
    ( 565545.6, 4191433.6,      91.4,     213.0,       1.5);         ( 565555.6, 4191433.6,      92.0,     213.0,       1.5);
    ( 565565.6, 4191433.6,      92.3,     213.0,       1.5);         ( 565575.6, 4191433.6,      92.7,     213.0,       1.5);
    ( 565595.6, 4191433.6,      93.8,     213.0,       1.5);         ( 565605.6, 4191433.6,      94.5,     213.0,       1.5);
    ( 565615.6, 4191433.6,      95.1,     213.0,       1.5);         ( 565625.6, 4191433.6,      95.8,     213.0,       1.5);
    ( 565635.6, 4191433.6,      96.4,     213.0,       1.5);         ( 565035.6, 4191443.6,      76.0,     213.0,       1.5);
    ( 565045.6, 4191443.6,      76.3,     213.0,       1.5);         ( 565055.6, 4191443.6,      76.6,     213.0,       1.5);
    ( 565065.6, 4191443.6,      77.0,     213.0,       1.5);         ( 565075.6, 4191443.6,      77.3,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 119
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

    ( 565135.6, 4191443.6,      79.3,     213.0,       1.5);         ( 565145.6, 4191443.6,      79.6,     213.0,       1.5);
    ( 565155.6, 4191443.6,      80.0,     213.0,       1.5);         ( 565215.6, 4191443.6,      80.4,     213.0,       1.5);
    ( 565225.6, 4191443.6,      80.6,     213.0,       1.5);         ( 565235.6, 4191443.6,      81.1,     213.0,       1.5);
    ( 565245.6, 4191443.6,      81.6,     213.0,       1.5);         ( 565255.6, 4191443.6,      82.0,     213.0,       1.5);
    ( 565265.6, 4191443.6,      82.1,     213.0,       1.5);         ( 565275.6, 4191443.6,      82.2,     213.0,       1.5);
    ( 565285.6, 4191443.6,      82.3,     213.0,       1.5);         ( 565295.6, 4191443.6,      82.6,     213.0,       1.5);
    ( 565455.6, 4191443.6,      88.5,     213.0,       1.5);         ( 565465.6, 4191443.6,      89.0,     213.0,       1.5);
    ( 565475.6, 4191443.6,      89.1,     213.0,       1.5);         ( 565485.6, 4191443.6,      89.2,     213.0,       1.5);
    ( 565495.6, 4191443.6,      89.3,     213.0,       1.5);         ( 565505.6, 4191443.6,      89.6,     213.0,       1.5);
    ( 565515.6, 4191443.6,      90.0,     213.0,       1.5);         ( 565525.6, 4191443.6,      90.4,     213.0,       1.5);
    ( 565535.6, 4191443.6,      91.0,     213.0,       1.5);         ( 565545.6, 4191443.6,      91.5,     213.0,       1.5);
    ( 565555.6, 4191443.6,      92.1,     213.0,       1.5);         ( 565565.6, 4191443.6,      92.5,     213.0,       1.5);
    ( 565575.6, 4191443.6,      92.9,     213.0,       1.5);         ( 565595.6, 4191443.6,      94.0,     213.0,       1.5);
    ( 565605.6, 4191443.6,      94.7,     213.0,       1.5);         ( 565615.6, 4191443.6,      95.4,     213.0,       1.5);
    ( 565625.6, 4191443.6,      96.0,     213.0,       1.5);         ( 565635.6, 4191443.6,      96.5,     213.0,       1.5);
    ( 565075.6, 4191453.6,      77.6,     213.0,       1.5);         ( 565085.6, 4191453.6,      78.0,     213.0,       1.5);
    ( 565095.6, 4191453.6,      78.3,     213.0,       1.5);         ( 565105.6, 4191453.6,      78.6,     213.0,       1.5);
    ( 565115.6, 4191453.6,      79.0,     213.0,       1.5);         ( 565125.6, 4191453.6,      79.3,     213.0,       1.5);
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( 565135.6, 4191453.6,      79.6,     213.0,       1.5);         ( 565145.6, 4191453.6,      80.0,     213.0,       1.5);
( 565155.6, 4191453.6,      80.3,     213.0,       1.5);         ( 565215.6, 4191453.6,      81.0,     213.0,       1.5);
( 565225.6, 4191453.6,      81.2,     213.0,       1.5);         ( 565235.6, 4191453.6,      81.5,     213.0,       1.5);
( 565245.6, 4191453.6,      81.8,     213.0,       1.5);         ( 565255.6, 4191453.6,      82.0,     213.0,       1.5);
( 565265.6, 4191453.6,      82.2,     213.0,       1.5);         ( 565275.6, 4191453.6,      82.4,     213.0,       1.5);
( 565285.6, 4191453.6,      82.6,     213.0,       1.5);         ( 565295.6, 4191453.6,      83.0,     213.0,       1.5);
( 565305.6, 4191453.6,      83.3,     213.0,       1.5);         ( 565315.6, 4191453.6,      83.7,     213.0,       1.5);
( 565325.6, 4191453.6,      84.2,     213.0,       1.5);         ( 565335.6, 4191453.6,      84.7,     213.0,       1.5);
( 565345.6, 4191453.6,      85.2,     213.0,       1.5);         ( 565355.6, 4191453.6,      85.7,     213.0,       1.5);
( 565515.6, 4191453.6,      90.3,     213.0,       1.5);         ( 565525.6, 4191453.6,      90.7,     213.0,       1.5);
( 565535.6, 4191453.6,      91.1,     213.0,       1.5);         ( 565545.6, 4191453.6,      91.6,     213.0,       1.5);
( 565555.6, 4191453.6,      92.1,     213.0,       1.5);         ( 565565.6, 4191453.6,      92.6,     213.0,       1.5);
( 565575.6, 4191453.6,      93.2,     213.0,       1.5);         ( 565595.6, 4191453.6,      94.4,     213.0,       1.5);
( 565605.6, 4191453.6,      95.0,     213.0,       1.5);         ( 565615.6, 4191453.6,      95.7,     213.0,       1.5);
( 565075.6, 4191463.6,      78.0,     213.0,       1.5);         ( 565085.6, 4191463.6,      78.3,     213.0,       1.5);
( 565095.6, 4191463.6,      78.6,     213.0,       1.5);         ( 565105.6, 4191463.6,      79.0,     213.0,       1.5);
( 565115.6, 4191463.6,      79.3,     213.0,       1.5);         ( 565125.6, 4191463.6,      79.6,     213.0,       1.5);
( 565135.6, 4191463.6,      80.0,     213.0,       1.5);         ( 565145.6, 4191463.6,      80.3,     213.0,       1.5);
( 565155.6, 4191463.6,      80.6,     213.0,       1.5);         ( 565175.6, 4191463.6,      80.9,     213.0,       1.5);
( 565185.6, 4191463.6,      80.9,     213.0,       1.5);         ( 565195.6, 4191463.6,      81.0,     213.0,       1.5);
( 565205.6, 4191463.6,      81.3,     213.0,       1.5);         ( 565215.6, 4191463.6,      81.6,     213.0,       1.5);
( 565225.6, 4191463.6,      81.8,     213.0,       1.5);         ( 565235.6, 4191463.6,      81.9,     213.0,       1.5);
( 565245.6, 4191463.6,      82.0,     213.0,       1.5);         ( 565255.6, 4191463.6,      82.1,     213.0,       1.5);
( 565265.6, 4191463.6,      82.4,     213.0,       1.5);         ( 565275.6, 4191463.6,      82.7,     213.0,       1.5);
( 565285.6, 4191463.6,      83.0,     213.0,       1.5);         ( 565295.6, 4191463.6,      83.3,     213.0,       1.5);
( 565305.6, 4191463.6,      83.6,     213.0,       1.5);         ( 565315.6, 4191463.6,      84.0,     213.0,       1.5);
( 565325.6, 4191463.6,      84.7,     213.0,       1.5);         ( 565335.6, 4191463.6,      85.3,     213.0,       1.5);
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                     PAGE 120
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

    ( 565345.6, 4191463.6,      85.9,     213.0,       1.5);         ( 565355.6, 4191463.6,      86.3,     213.0,       1.5);
    ( 565385.6, 4191463.6,      86.9,     213.0,       1.5);         ( 565395.6, 4191463.6,      86.9,     213.0,       1.5);
    ( 565405.6, 4191463.6,      87.0,     213.0,       1.5);         ( 565595.6, 4191463.6,      94.7,     213.0,       1.5);
    ( 565605.6, 4191463.6,      95.4,     213.0,       1.5);         ( 565615.6, 4191463.6,      96.0,     213.0,       1.5);
    ( 565075.6, 4191473.6,      78.3,     213.0,       1.5);         ( 565085.6, 4191473.6,      78.6,     213.0,       1.5);
    ( 565095.6, 4191473.6,      79.0,     213.0,       1.5);         ( 565105.6, 4191473.6,      79.3,     213.0,       1.5);
    ( 565115.6, 4191473.6,      79.6,     213.0,       1.5);         ( 565125.6, 4191473.6,      80.0,     213.0,       1.5);
    ( 565135.6, 4191473.6,      80.3,     213.0,       1.5);         ( 565145.6, 4191473.6,      80.5,     213.0,       1.5);
    ( 565155.6, 4191473.6,      80.8,     213.0,       1.5);         ( 565175.6, 4191473.6,      81.1,     213.0,       1.5);
    ( 565185.6, 4191473.6,      81.2,     213.0,       1.5);         ( 565195.6, 4191473.6,      81.3,     213.0,       1.5);
    ( 565205.6, 4191473.6,      81.6,     213.0,       1.5);         ( 565215.6, 4191473.6,      82.0,     213.0,       1.5);
    ( 565225.6, 4191473.6,      82.3,     213.0,       1.5);         ( 565235.6, 4191473.6,      82.3,     213.0,       1.5);
    ( 565245.6, 4191473.6,      82.4,     213.0,       1.5);         ( 565255.6, 4191473.6,      82.5,     213.0,       1.5);
    ( 565265.6, 4191473.6,      82.8,     213.0,       1.5);         ( 565275.6, 4191473.6,      83.0,     213.0,       1.5);
    ( 565285.6, 4191473.6,      83.3,     213.0,       1.5);         ( 565295.6, 4191473.6,      83.6,     213.0,       1.5);
    ( 565305.6, 4191473.6,      84.0,     213.0,       1.5);         ( 565315.6, 4191473.6,      84.4,     213.0,       1.5);
    ( 565325.6, 4191473.6,      85.0,     213.0,       1.5);         ( 565345.6, 4191473.6,      86.3,     213.0,       1.5);
    ( 565355.6, 4191473.6,      86.5,     213.0,       1.5);         ( 565385.6, 4191473.6,      87.1,     213.0,       1.5);
    ( 565395.6, 4191473.6,      87.2,     213.0,       1.5);         ( 565405.6, 4191473.6,      87.3,     213.0,       1.5);
    ( 565615.6, 4191473.6,      96.1,     213.0,       1.5);         ( 565075.6, 4191483.6,      78.6,     213.0,       1.5);
    ( 565085.6, 4191483.6,      79.0,     213.0,       1.5);         ( 565095.6, 4191483.6,      79.3,     213.0,       1.5);
    ( 565105.6, 4191483.6,      79.6,     213.0,       1.5);         ( 565115.6, 4191483.6,      80.0,     213.0,       1.5);
    ( 565125.6, 4191483.6,      80.3,     213.0,       1.5);         ( 565135.6, 4191483.6,      80.6,     213.0,       1.5);
    ( 565145.6, 4191483.6,      80.8,     213.0,       1.5);         ( 565155.6, 4191483.6,      80.9,     213.0,       1.5);
    ( 565175.6, 4191483.6,      81.2,     213.0,       1.5);         ( 565185.6, 4191483.6,      81.4,     213.0,       1.5);
    ( 565195.6, 4191483.6,      81.6,     213.0,       1.5);         ( 565205.6, 4191483.6,      82.0,     213.0,       1.5);
    ( 565215.6, 4191483.6,      82.3,     213.0,       1.5);         ( 565225.6, 4191483.6,      82.6,     213.0,       1.5);
    ( 565235.6, 4191483.6,      82.8,     213.0,       1.5);         ( 565245.6, 4191483.6,      83.0,     213.0,       1.5);
    ( 565255.6, 4191483.6,      83.2,     213.0,       1.5);         ( 565265.6, 4191483.6,      83.3,     213.0,       1.5);
    ( 565275.6, 4191483.6,      83.5,     213.0,       1.5);         ( 565285.6, 4191483.6,      83.6,     213.0,       1.5);
    ( 565295.6, 4191483.6,      84.0,     213.0,       1.5);         ( 565305.6, 4191483.6,      84.3,     213.0,       1.5);
    ( 565345.6, 4191483.6,      86.6,     213.0,       1.5);         ( 565355.6, 4191483.6,      86.8,     213.0,       1.5);
    ( 565375.6, 4191483.6,      87.0,     213.0,       1.5);         ( 565385.6, 4191483.6,      87.2,     213.0,       1.5);
    ( 565395.6, 4191483.6,      87.4,     213.0,       1.5);         ( 565405.6, 4191483.6,      87.6,     213.0,       1.5);
    ( 565515.6, 4191483.6,      90.9,     213.0,       1.5);         ( 565525.6, 4191483.6,      91.1,     213.0,       1.5);
    ( 565535.6, 4191483.6,      91.4,     213.0,       1.5);         ( 565125.6, 4191493.6,      80.6,     213.0,       1.5);
    ( 565135.6, 4191493.6,      80.9,     213.0,       1.5);         ( 565145.6, 4191493.6,      80.9,     213.0,       1.5);
    ( 565155.6, 4191493.6,      81.0,     213.0,       1.5);         ( 565175.6, 4191493.6,      81.4,     213.0,       1.5);
    ( 565185.6, 4191493.6,      81.7,     213.0,       1.5);         ( 565195.6, 4191493.6,      82.0,     213.0,       1.5);
    ( 565205.6, 4191493.6,      82.3,     213.0,       1.5);         ( 565215.6, 4191493.6,      82.6,     213.0,       1.5);
    ( 565225.6, 4191493.6,      83.0,     213.0,       1.5);         ( 565235.6, 4191493.6,      83.3,     213.0,       1.5);
    ( 565245.6, 4191493.6,      83.6,     213.0,       1.5);         ( 565255.6, 4191493.6,      83.8,     213.0,       1.5);
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    ( 565265.6, 4191493.6,      83.8,     213.0,       1.5);         ( 565275.6, 4191493.6,      83.9,     213.0,       1.5);
    ( 565285.6, 4191493.6,      84.0,     213.0,       1.5);         ( 565295.6, 4191493.6,      84.3,     213.0,       1.5);
    ( 565305.6, 4191493.6,      84.6,     213.0,       1.5);         ( 565315.6, 4191493.6,      85.0,     213.0,       1.5);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 121
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

    ( 565325.6, 4191493.6,      85.7,     213.0,       1.5);         ( 565335.6, 4191493.6,      86.4,     213.0,       1.5);
    ( 565345.6, 4191493.6,      86.9,     213.0,       1.5);         ( 565355.6, 4191493.6,      86.9,     213.0,       1.5);
    ( 565375.6, 4191493.6,      87.1,     213.0,       1.5);         ( 565385.6, 4191493.6,      87.4,     213.0,       1.5);
    ( 565395.6, 4191493.6,      87.7,     213.0,       1.5);         ( 565515.6, 4191493.6,      91.0,     213.0,       1.5);
    ( 565525.6, 4191493.6,      91.1,     213.0,       1.5);         ( 565535.6, 4191493.6,      91.4,     213.0,       1.5);
    ( 565175.6, 4191503.6,      81.6,     213.0,       1.5);         ( 565185.6, 4191503.6,      82.0,     213.0,       1.5);
    ( 565195.6, 4191503.6,      82.3,     213.0,       1.5);         ( 565205.6, 4191503.6,      82.6,     213.0,       1.5);
    ( 565215.6, 4191503.6,      83.0,     213.0,       1.5);         ( 565225.6, 4191503.6,      83.3,     213.0,       1.5);
    ( 565235.6, 4191503.6,      83.6,     213.0,       1.5);         ( 565245.6, 4191503.6,      84.0,     213.0,       1.5);
    ( 565255.6, 4191503.6,      84.2,     213.0,       1.5);         ( 565265.6, 4191503.6,      84.2,     213.0,       1.5);
    ( 565275.6, 4191503.6,      84.2,     213.0,       1.5);         ( 565285.6, 4191503.6,      84.3,     213.0,       1.5);
    ( 565295.6, 4191503.6,      84.6,     213.0,       1.5);         ( 565305.6, 4191503.6,      85.0,     213.0,       1.5);
    ( 565315.6, 4191503.6,      85.4,     213.0,       1.5);         ( 565325.6, 4191503.6,      86.0,     213.0,       1.5);
    ( 565335.6, 4191503.6,      86.5,     213.0,       1.5);         ( 565345.6, 4191503.6,      87.0,     213.0,       1.5);
    ( 565375.6, 4191503.6,      87.5,     213.0,       1.5);         ( 565385.6, 4191503.6,      87.8,     213.0,       1.5);
    ( 565395.6, 4191503.6,      88.0,     213.0,       1.5);         ( 565515.6, 4191503.6,      91.2,     213.0,       1.5);
    ( 565525.6, 4191503.6,      91.3,     213.0,       1.5);         ( 565535.6, 4191503.6,      91.7,     213.0,       1.5);
    ( 565545.6, 4191503.6,      92.2,     213.0,       1.5);         ( 565235.6, 4191513.6,      84.0,     213.0,       1.5);
    ( 565245.6, 4191513.6,      84.3,     213.0,       1.5);         ( 565255.6, 4191513.6,      84.6,     213.0,       1.5);
    ( 565265.6, 4191513.6,      84.6,     213.0,       1.5);         ( 565275.6, 4191513.6,      84.6,     213.0,       1.5);
    ( 565285.6, 4191513.6,      84.6,     213.0,       1.5);         ( 565295.6, 4191513.6,      85.0,     213.0,       1.5);
    ( 565305.6, 4191513.6,      85.3,     213.0,       1.5);         ( 565315.6, 4191513.6,      85.7,     213.0,       1.5);
    ( 565325.6, 4191513.6,      86.1,     213.0,       1.5);         ( 565335.6, 4191513.6,      86.6,     213.0,       1.5);
    ( 565345.6, 4191513.6,      87.1,     213.0,       1.5);         ( 565375.6, 4191513.6,      88.2,     213.0,       1.5);
    ( 565385.6, 4191513.6,      88.3,     213.0,       1.5);         ( 565395.6, 4191513.6,      88.5,     213.0,       1.5);
    ( 565515.6, 4191513.6,      91.6,     213.0,       1.5);         ( 565525.6, 4191513.6,      91.7,     213.0,       1.5);
    ( 565535.6, 4191513.6,      92.2,     213.0,       1.5);         ( 565545.6, 4191513.6,      92.7,     213.0,       1.5);
    ( 565285.6, 4191523.6,      85.0,     213.0,       1.5);         ( 565295.6, 4191523.6,      85.3,     213.0,       1.5);
    ( 565305.6, 4191523.6,      85.6,     213.0,       1.5);         ( 565315.6, 4191523.6,      86.0,     213.0,       1.5);
    ( 565325.6, 4191523.6,      86.3,     213.0,       1.5);         ( 565335.6, 4191523.6,      86.7,     213.0,       1.5);
    ( 565345.6, 4191523.6,      87.1,     213.0,       1.5);         ( 565375.6, 4191523.6,      88.8,     213.0,       1.5);
    ( 565385.6, 4191523.6,      88.8,     213.0,       1.5);         ( 565395.6, 4191523.6,      88.9,     213.0,       1.5);
    ( 565315.6, 4191533.6,      86.5,     213.0,       1.5);         ( 565325.6, 4191533.6,      86.9,     213.0,       1.5);
    ( 565335.6, 4191533.6,      87.2,     213.0,       1.5);         ( 565345.6, 4191533.6,      87.6,     213.0,       1.5);
    ( 565375.6, 4191533.6,      89.2,     213.0,       1.5);         ( 565385.6, 4191533.6,      89.2,     213.0,       1.5);
    ( 565395.6, 4191533.6,      89.2,     213.0,       1.5);         ( 565065.6, 4190893.6,      63.7,      63.7,       6.1);
    ( 565075.6, 4190893.6,      64.1,      64.1,       6.1);         ( 565085.6, 4190893.6,      64.4,      64.4,       6.1);
    ( 565095.6, 4190893.6,      64.7,      64.7,       6.1);         ( 565105.6, 4190893.6,      65.1,      65.1,       6.1);
    ( 565065.6, 4190903.6,      64.0,      64.0,       6.1);         ( 565075.6, 4190903.6,      64.3,      64.3,       6.1);
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    ( 565085.6, 4190903.6,      64.6,      64.6,       6.1);         ( 565095.6, 4190903.6,      65.0,      65.0,       6.1);
    ( 565105.6, 4190903.6,      65.3,      65.3,       6.1);         ( 565115.6, 4190903.6,      65.6,      65.6,       6.1);
    ( 565145.6, 4190903.6,      66.6,      66.6,       6.1);         ( 565155.6, 4190903.6,      67.0,      67.0,       6.1);
    ( 565065.6, 4190913.6,      64.3,      64.3,       6.1);         ( 565075.6, 4190913.6,      64.6,      64.6,       6.1);
    ( 565085.6, 4190913.6,      65.0,      65.0,       6.1);         ( 565095.6, 4190913.6,      65.3,      65.3,       6.1);
    ( 565105.6, 4190913.6,      65.6,      65.6,       6.1);         ( 565115.6, 4190913.6,      66.0,      66.0,       6.1);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 122
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                      (METERS)

    ( 565145.6, 4190913.6,      67.0,     213.0,       6.1);         ( 565155.6, 4190913.6,      67.3,     213.0,       6.1);
    ( 565165.6, 4190913.6,      67.6,     213.0,       6.1);         ( 565065.6, 4190923.6,      64.6,      64.6,       6.1);
    ( 565075.6, 4190923.6,      65.0,      65.0,       6.1);         ( 565085.6, 4190923.6,      65.3,      65.3,       6.1);
    ( 565095.6, 4190923.6,      65.6,     213.0,       6.1);         ( 565105.6, 4190923.6,      66.0,     213.0,       6.1);
    ( 565115.6, 4190923.6,      66.3,     213.0,       6.1);         ( 565145.6, 4190923.6,      67.3,     213.0,       6.1);
    ( 565155.6, 4190923.6,      67.6,     213.0,       6.1);         ( 565165.6, 4190923.6,      67.9,     213.0,       6.1);
    ( 565225.6, 4190923.6,      69.0,     213.0,       6.1);         ( 565235.6, 4190923.6,      69.3,     213.0,       6.1);
    ( 565055.6, 4190933.6,      64.4,     213.0,       6.1);         ( 565065.6, 4190933.6,      64.7,     213.0,       6.1);
    ( 565075.6, 4190933.6,      65.1,     213.0,       6.1);         ( 565085.6, 4190933.6,      65.4,     213.0,       6.1);
    ( 565095.6, 4190933.6,      65.7,     213.0,       6.1);         ( 565105.6, 4190933.6,      66.1,     213.0,       6.1);
    ( 565115.6, 4190933.6,      66.4,     213.0,       6.1);         ( 565145.6, 4190933.6,      67.4,     213.0,       6.1);
    ( 565155.6, 4190933.6,      67.7,     213.0,       6.1);         ( 565225.6, 4190933.6,      69.3,     213.0,       6.1);
    ( 565235.6, 4190933.6,      69.6,     213.0,       6.1);         ( 565305.6, 4190933.6,      72.7,     213.0,       6.1);
    ( 565315.6, 4190933.6,      73.0,     213.0,       6.1);         ( 565325.6, 4190933.6,      73.1,     213.0,       6.1);
    ( 565335.6, 4190933.6,      73.2,     213.0,       6.1);         ( 565345.6, 4190933.6,      73.4,     213.0,       6.1);
    ( 565355.6, 4190933.6,      74.0,     213.0,       6.1);         ( 565365.6, 4190933.6,      74.5,     213.0,       6.1);
    ( 565055.6, 4190943.6,      64.4,     213.0,       6.1);         ( 565065.6, 4190943.6,      64.7,     213.0,       6.1);
    ( 565075.6, 4190943.6,      65.1,     213.0,       6.1);         ( 565085.6, 4190943.6,      65.4,     213.0,       6.1);
    ( 565095.6, 4190943.6,      65.7,     213.0,       6.1);         ( 565105.6, 4190943.6,      66.1,     213.0,       6.1);
    ( 565115.6, 4190943.6,      66.4,     213.0,       6.1);         ( 565145.6, 4190943.6,      67.4,     213.0,       6.1);
    ( 565155.6, 4190943.6,      67.7,     213.0,       6.1);         ( 565265.6, 4190943.6,      71.1,     213.0,       6.1);
    ( 565275.6, 4190943.6,      71.6,     213.0,       6.1);         ( 565285.6, 4190943.6,      72.1,     213.0,       6.1);
    ( 565305.6, 4190943.6,      72.7,     213.0,       6.1);         ( 565315.6, 4190943.6,      73.0,     213.0,       6.1);
    ( 565325.6, 4190943.6,      73.2,     213.0,       6.1);         ( 565335.6, 4190943.6,      73.4,     213.0,       6.1);
    ( 565345.6, 4190943.6,      73.7,     213.0,       6.1);         ( 565355.6, 4190943.6,      74.1,     213.0,       6.1);
    ( 565365.6, 4190943.6,      74.6,     213.0,       6.1);         ( 565375.6, 4190943.6,      75.1,     213.0,       6.1);
    ( 565385.6, 4190943.6,      75.6,     213.0,       6.1);         ( 565395.6, 4190943.6,      76.2,     213.0,       6.1);
    ( 565425.6, 4190943.6,      78.0,     213.0,       6.1);         ( 565435.6, 4190943.6,      78.6,     213.0,       6.1);
    ( 565445.6, 4190943.6,      79.0,     213.0,       6.1);         ( 565455.6, 4190943.6,      79.3,     213.0,       6.1);
    ( 565465.6, 4190943.6,      79.7,     213.0,       6.1);         ( 565475.6, 4190943.6,      80.1,     213.0,       6.1);
    ( 565485.6, 4190943.6,      80.6,     213.0,       6.1);         ( 565495.6, 4190943.6,      81.1,     213.0,       6.1);
    ( 565505.6, 4190943.6,      81.4,     213.0,       6.1);         ( 565515.6, 4190943.6,      81.7,     213.0,       6.1);
    ( 565055.6, 4190953.6,      64.4,     213.0,       6.1);         ( 565065.6, 4190953.6,      64.7,     213.0,       6.1);
    ( 565075.6, 4190953.6,      65.1,     213.0,       6.1);         ( 565085.6, 4190953.6,      65.4,     213.0,       6.1);
    ( 565095.6, 4190953.6,      65.7,     213.0,       6.1);         ( 565105.6, 4190953.6,      66.1,     213.0,       6.1);
    ( 565115.6, 4190953.6,      66.4,     213.0,       6.1);         ( 565145.6, 4190953.6,      67.4,     213.0,       6.1);
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    ( 565155.6, 4190953.6,      67.7,     213.0,       6.1);         ( 565265.6, 4190953.6,      71.3,     213.0,       6.1);
    ( 565275.6, 4190953.6,      71.7,     213.0,       6.1);         ( 565285.6, 4190953.6,      72.1,     213.0,       6.1);
    ( 565305.6, 4190953.6,      72.7,     213.0,       6.1);         ( 565315.6, 4190953.6,      73.1,     213.0,       6.1);
    ( 565325.6, 4190953.6,      73.4,     213.0,       6.1);         ( 565335.6, 4190953.6,      73.7,     213.0,       6.1);
    ( 565345.6, 4190953.6,      74.0,     213.0,       6.1);         ( 565355.6, 4190953.6,      74.3,     213.0,       6.1);
    ( 565365.6, 4190953.6,      74.7,     213.0,       6.1);         ( 565375.6, 4190953.6,      75.1,     213.0,       6.1);
    ( 565385.6, 4190953.6,      75.8,     213.0,       6.1);         ( 565395.6, 4190953.6,      76.4,     213.0,       6.1);
    ( 565425.6, 4190953.6,      78.4,     213.0,       6.1);         ( 565435.6, 4190953.6,      79.0,     213.0,       6.1);
    ( 565445.6, 4190953.6,      79.3,     213.0,       6.1);         ( 565455.6, 4190953.6,      79.6,     213.0,       6.1);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                            ***        14:10:30
                                                                                                                             PAGE 123
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                      (METERS)

    ( 565465.6, 4190953.6,      80.0,     213.0,       6.1);         ( 565475.6, 4190953.6,      80.3,     213.0,       6.1);
    ( 565485.6, 4190953.6,      80.7,     213.0,       6.1);         ( 565495.6, 4190953.6,      81.1,     213.0,       6.1);
    ( 565505.6, 4190953.6,      81.4,     213.0,       6.1);         ( 565515.6, 4190953.6,      81.7,     213.0,       6.1);
    ( 565535.6, 4190953.6,      82.4,     213.0,       6.1);         ( 565545.6, 4190953.6,      82.7,     213.0,       6.1);
    ( 565555.6, 4190953.6,      83.1,     213.0,       6.1);         ( 565565.6, 4190953.6,      83.8,     213.0,       6.1);
    ( 565575.6, 4190953.6,      84.4,     213.0,       6.1);         ( 565585.6, 4190953.6,      85.0,     213.0,       6.1);
    ( 565595.6, 4190953.6,      85.3,     213.0,       6.1);         ( 565605.6, 4190953.6,      85.6,     213.0,       6.1);
    ( 565615.6, 4190953.6,      86.0,     213.0,       6.1);         ( 565625.6, 4190953.6,      86.3,     213.0,       6.1);
    ( 565055.6, 4190963.6,      64.5,     213.0,       6.1);         ( 565065.6, 4190963.6,      64.8,     213.0,       6.1);
    ( 565075.6, 4190963.6,      65.1,     213.0,       6.1);         ( 565085.6, 4190963.6,      65.4,     213.0,       6.1);
    ( 565095.6, 4190963.6,      65.7,     213.0,       6.1);         ( 565105.6, 4190963.6,      66.1,     213.0,       6.1);
    ( 565115.6, 4190963.6,      66.4,     213.0,       6.1);         ( 565145.6, 4190963.6,      67.4,     213.0,       6.1);
    ( 565155.6, 4190963.6,      67.7,     213.0,       6.1);         ( 565265.6, 4190963.6,      71.6,     213.0,       6.1);
    ( 565275.6, 4190963.6,      72.0,     213.0,       6.1);         ( 565285.6, 4190963.6,      72.3,     213.0,       6.1);
    ( 565305.6, 4190963.6,      73.0,     213.0,       6.1);         ( 565315.6, 4190963.6,      73.3,     213.0,       6.1);
    ( 565325.6, 4190963.6,      73.6,     213.0,       6.1);         ( 565335.6, 4190963.6,      74.0,     213.0,       6.1);
    ( 565345.6, 4190963.6,      74.3,     213.0,       6.1);         ( 565355.6, 4190963.6,      74.6,     213.0,       6.1);
    ( 565365.6, 4190963.6,      75.0,     213.0,       6.1);         ( 565375.6, 4190963.6,      75.4,     213.0,       6.1);
    ( 565385.6, 4190963.6,      76.0,     213.0,       6.1);         ( 565395.6, 4190963.6,      76.7,     213.0,       6.1);
    ( 565425.6, 4190963.6,      78.5,     213.0,       6.1);         ( 565435.6, 4190963.6,      79.1,     213.0,       6.1);
    ( 565445.6, 4190963.6,      79.4,     213.0,       6.1);         ( 565455.6, 4190963.6,      79.7,     213.0,       6.1);
    ( 565465.6, 4190963.6,      80.1,     213.0,       6.1);         ( 565475.6, 4190963.6,      80.4,     213.0,       6.1);
    ( 565485.6, 4190963.6,      80.7,     213.0,       6.1);         ( 565495.6, 4190963.6,      81.1,     213.0,       6.1);
    ( 565505.6, 4190963.6,      81.5,     213.0,       6.1);         ( 565515.6, 4190963.6,      81.9,     213.0,       6.1);
    ( 565535.6, 4190963.6,      82.6,     213.0,       6.1);         ( 565545.6, 4190963.6,      83.0,     213.0,       6.1);
    ( 565555.6, 4190963.6,      83.4,     213.0,       6.1);         ( 565565.6, 4190963.6,      84.0,     213.0,       6.1);
    ( 565575.6, 4190963.6,      84.5,     213.0,       6.1);         ( 565585.6, 4190963.6,      85.1,     213.0,       6.1);
    ( 565595.6, 4190963.6,      85.5,     213.0,       6.1);         ( 565605.6, 4190963.6,      85.9,     213.0,       6.1);
    ( 565615.6, 4190963.6,      86.3,     213.0,       6.1);         ( 565625.6, 4190963.6,      86.6,     213.0,       6.1);
    ( 565055.6, 4190973.6,      64.8,     213.0,       6.1);         ( 565065.6, 4190973.6,      64.9,     213.0,       6.1);
    ( 565075.6, 4190973.6,      65.1,     213.0,       6.1);         ( 565085.6, 4190973.6,      65.4,     213.0,       6.1);
    ( 565095.6, 4190973.6,      65.7,     213.0,       6.1);         ( 565105.6, 4190973.6,      66.1,     213.0,       6.1);
    ( 565115.6, 4190973.6,      66.4,     213.0,       6.1);         ( 565145.6, 4190973.6,      67.4,     213.0,       6.1);
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     ( 565155.6, 4190973.6,      67.7,     213.0,       6.1);         ( 565265.6, 4190973.6,      72.0,     213.0,       6.1);
     ( 565275.6, 4190973.6,      72.3,     213.0,       6.1);         ( 565305.6, 4190973.6,      73.3,     213.0,       6.1);
     ( 565315.6, 4190973.6,      73.6,     213.0,       6.1);         ( 565325.6, 4190973.6,      74.0,     213.0,       6.1);
     ( 565335.6, 4190973.6,      74.3,     213.0,       6.1);         ( 565345.6, 4190973.6,      74.6,     213.0,       6.1);
     ( 565355.6, 4190973.6,      75.0,     213.0,       6.1);         ( 565365.6, 4190973.6,      75.3,     213.0,       6.1);
     ( 565375.6, 4190973.6,      75.7,     213.0,       6.1);         ( 565385.6, 4190973.6,      76.4,     213.0,       6.1);
     ( 565395.6, 4190973.6,      77.0,     213.0,       6.1);         ( 565425.6, 4190973.6,      78.6,     213.0,       6.1);
     ( 565435.6, 4190973.6,      79.1,     213.0,       6.1);         ( 565445.6, 4190973.6,      79.4,     213.0,       6.1);
     ( 565455.6, 4190973.6,      79.7,     213.0,       6.1);         ( 565465.6, 4190973.6,      80.1,     213.0,       6.1);
     ( 565475.6, 4190973.6,      80.4,     213.0,       6.1);         ( 565485.6, 4190973.6,      80.7,     213.0,       6.1);
     ( 565495.6, 4190973.6,      81.1,     213.0,       6.1);         ( 565505.6, 4190973.6,      81.6,     213.0,       6.1);
     ( 565515.6, 4190973.6,      82.2,     213.0,       6.1);         ( 565535.6, 4190973.6,      83.0,     213.0,       6.1);       ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***        14:10:30
                                                                                                                 PAGE 124
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     ( 565545.6, 4190973.6,      83.3,     213.0,       6.1);         ( 565555.6, 4190973.6,      83.7,     213.0,       6.1);
     ( 565565.6, 4190973.6,      84.1,     213.0,       6.1);         ( 565575.6, 4190973.6,      84.6,     213.0,       6.1);
     ( 565585.6, 4190973.6,      85.1,     213.0,       6.1);         ( 565595.6, 4190973.6,      85.6,     213.0,       6.1);
     ( 565605.6, 4190973.6,      86.2,     213.0,       6.1);         ( 565615.6, 4190973.6,      86.6,     213.0,       6.1);
     ( 565625.6, 4190973.6,      87.0,     213.0,       6.1);         ( 565095.6, 4190983.6,      65.7,     213.0,       6.1);
     ( 565105.6, 4190983.6,      66.1,     213.0,       6.1);         ( 565115.6, 4190983.6,      66.4,     213.0,       6.1);
     ( 565145.6, 4190983.6,      67.4,     213.0,       6.1);         ( 565155.6, 4190983.6,      67.7,     213.0,       6.1);
     ( 565265.6, 4190983.6,      72.3,     213.0,       6.1);         ( 565275.6, 4190983.6,      72.6,     213.0,       6.1);
     ( 565305.6, 4190983.6,      73.6,     213.0,       6.1);         ( 565315.6, 4190983.6,      74.0,     213.0,       6.1);
     ( 565325.6, 4190983.6,      74.3,     213.0,       6.1);         ( 565335.6, 4190983.6,      74.6,     213.0,       6.1);
     ( 565345.6, 4190983.6,      75.0,     213.0,       6.1);         ( 565355.6, 4190983.6,      75.3,     213.0,       6.1);
     ( 565365.6, 4190983.6,      75.6,     213.0,       6.1);         ( 565375.6, 4190983.6,      76.0,     213.0,       6.1);
     ( 565385.6, 4190983.6,      76.7,     213.0,       6.1);         ( 565395.6, 4190983.6,      77.4,     213.0,       6.1);
     ( 565425.6, 4190983.6,      78.7,     213.0,       6.1);         ( 565435.6, 4190983.6,      79.1,     213.0,       6.1);
     ( 565445.6, 4190983.6,      79.4,     213.0,       6.1);         ( 565455.6, 4190983.6,      79.7,     213.0,       6.1);
     ( 565465.6, 4190983.6,      80.1,     213.0,       6.1);         ( 565475.6, 4190983.6,      80.4,     213.0,       6.1);
     ( 565485.6, 4190983.6,      80.7,     213.0,       6.1);         ( 565495.6, 4190983.6,      81.1,     213.0,       6.1);
     ( 565505.6, 4190983.6,      81.8,     213.0,       6.1);         ( 565535.6, 4190983.6,      83.3,     213.0,       6.1);
     ( 565545.6, 4190983.6,      83.6,     213.0,       6.1);         ( 565555.6, 4190983.6,      84.0,     213.0,       6.1);
     ( 565565.6, 4190983.6,      84.3,     213.0,       6.1);         ( 565575.6, 4190983.6,      84.7,     213.0,       6.1);
     ( 565585.6, 4190983.6,      85.1,     213.0,       6.1);         ( 565595.6, 4190983.6,      85.8,     213.0,       6.1);
     ( 565605.6, 4190983.6,      86.4,     213.0,       6.1);         ( 565615.6, 4190983.6,      87.0,     213.0,       6.1);
     ( 565625.6, 4190983.6,      87.3,     213.0,       6.1);         ( 565055.6, 4190993.6,      65.1,     213.0,       6.1);
     ( 565145.6, 4190993.6,      67.4,     213.0,       6.1);         ( 565155.6, 4190993.6,      67.7,     213.0,       6.1);
     ( 565265.6, 4190993.6,      72.5,     213.0,       6.1);         ( 565275.6, 4190993.6,      72.9,     213.0,       6.1);
     ( 565305.6, 4190993.6,      73.8,     213.0,       6.1);         ( 565315.6, 4190993.6,      74.1,     213.0,       6.1);
     ( 565325.6, 4190993.6,      74.5,     213.0,       6.1);         ( 565335.6, 4190993.6,      74.9,     213.0,       6.1);
     ( 565345.6, 4190993.6,      75.3,     213.0,       6.1);         ( 565355.6, 4190993.6,      75.6,     213.0,       6.1);
     ( 565365.6, 4190993.6,      76.0,     213.0,       6.1);         ( 565375.6, 4190993.6,      76.4,     213.0,       6.1);
     ( 565385.6, 4190993.6,      77.0,     213.0,       6.1);         ( 565395.6, 4190993.6,      77.5,     213.0,       6.1);
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     ( 565425.6, 4190993.6,      78.7,     213.0,       6.1);         ( 565435.6, 4190993.6,      79.1,     213.0,       6.1);
     ( 565445.6, 4190993.6,      79.5,     213.0,       6.1);         ( 565455.6, 4190993.6,      79.9,     213.0,       6.1);
     ( 565465.6, 4190993.6,      80.3,     213.0,       6.1);         ( 565475.6, 4190993.6,      80.6,     213.0,       6.1);
     ( 565485.6, 4190993.6,      81.0,     213.0,       6.1);         ( 565495.6, 4190993.6,      81.4,     213.0,       6.1);
     ( 565505.6, 4190993.6,      82.0,     213.0,       6.1);         ( 565535.6, 4190993.6,      83.4,     213.0,       6.1);
     ( 565545.6, 4190993.6,      83.7,     213.0,       6.1);         ( 565555.6, 4190993.6,      84.1,     213.0,       6.1);
     ( 565565.6, 4190993.6,      84.5,     213.0,       6.1);         ( 565575.6, 4190993.6,      84.9,     213.0,       6.1);
     ( 565585.6, 4190993.6,      85.4,     213.0,       6.1);         ( 565595.6, 4190993.6,      86.0,     213.0,       6.1);
     ( 565605.6, 4190993.6,      86.5,     213.0,       6.1);         ( 565615.6, 4190993.6,      87.1,     213.0,       6.1);
     ( 565625.6, 4190993.6,      87.5,     213.0,       6.1);         ( 565055.6, 4191003.6,      65.2,     213.0,       6.1);
     ( 565065.6, 4191003.6,      65.4,     213.0,       6.1);         ( 565075.6, 4191003.6,      65.6,     213.0,       6.1);
     ( 565085.6, 4191003.6,      66.0,     213.0,       6.1);         ( 565095.6, 4191003.6,      66.3,     213.0,       6.1);
     ( 565105.6, 4191003.6,      66.6,     213.0,       6.1);         ( 565115.6, 4191003.6,      66.8,     213.0,       6.1);
     ( 565125.6, 4191003.6,      66.9,     213.0,       6.1);         ( 565135.6, 4191003.6,      67.1,     213.0,       6.1);
     ( 565145.6, 4191003.6,      67.4,     213.0,       6.1);         ( 565235.6, 4191003.6,      71.1,     213.0,       6.1);     ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***        14:10:30
                                                                                                                 PAGE 125
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                   (METERS)

     ( 565245.6, 4191003.6,      71.6,     213.0,       6.1);         ( 565255.6, 4191003.6,      72.1,     213.0,       6.1);
     ( 565265.6, 4191003.6,      72.6,     213.0,       6.1);         ( 565275.6, 4191003.6,      73.2,     213.0,       6.1);
     ( 565305.6, 4191003.6,      73.9,     213.0,       6.1);         ( 565315.6, 4191003.6,      74.1,     213.0,       6.1);
     ( 565325.6, 4191003.6,      74.6,     213.0,       6.1);         ( 565335.6, 4191003.6,      75.2,     213.0,       6.1);
     ( 565345.6, 4191003.6,      75.6,     213.0,       6.1);         ( 565355.6, 4191003.6,      76.0,     213.0,       6.1);
     ( 565365.6, 4191003.6,      76.3,     213.0,       6.1);         ( 565375.6, 4191003.6,      76.7,     213.0,       6.1);
     ( 565385.6, 4191003.6,      77.1,     213.0,       6.1);         ( 565395.6, 4191003.6,      77.6,     213.0,       6.1);
     ( 565425.6, 4191003.6,      78.7,     213.0,       6.1);         ( 565435.6, 4191003.6,      79.1,     213.0,       6.1);
     ( 565445.6, 4191003.6,      79.6,     213.0,       6.1);         ( 565455.6, 4191003.6,      80.2,     213.0,       6.1);
     ( 565465.6, 4191003.6,      80.6,     213.0,       6.1);         ( 565475.6, 4191003.6,      81.0,     213.0,       6.1);
     ( 565485.6, 4191003.6,      81.3,     213.0,       6.1);         ( 565495.6, 4191003.6,      81.7,     213.0,       6.1);
     ( 565505.6, 4191003.6,      82.1,     213.0,       6.1);         ( 565535.6, 4191003.6,      83.4,     213.0,       6.1);
     ( 565545.6, 4191003.6,      83.7,     213.0,       6.1);         ( 565555.6, 4191003.6,      84.1,     213.0,       6.1);
     ( 565565.6, 4191003.6,      84.6,     213.0,       6.1);         ( 565575.6, 4191003.6,      85.2,     213.0,       6.1);
     ( 565585.6, 4191003.6,      85.7,     213.0,       6.1);         ( 565595.6, 4191003.6,      86.1,     213.0,       6.1);
     ( 565605.6, 4191003.6,      86.6,     213.0,       6.1);         ( 565615.6, 4191003.6,      87.1,     213.0,       6.1);
     ( 565625.6, 4191003.6,      87.6,     213.0,       6.1);         ( 565045.6, 4191013.6,      65.1,     213.0,       6.1);
     ( 565055.6, 4191013.6,      65.4,     213.0,       6.1);         ( 565065.6, 4191013.6,      65.7,     213.0,       6.1);
     ( 565075.6, 4191013.6,      66.0,     213.0,       6.1);         ( 565085.6, 4191013.6,      66.3,     213.0,       6.1);
     ( 565095.6, 4191013.6,      66.6,     213.0,       6.1);         ( 565105.6, 4191013.6,      66.9,     213.0,       6.1);
     ( 565115.6, 4191013.6,      66.9,     213.0,       6.1);         ( 565125.6, 4191013.6,      67.0,     213.0,       6.1);
     ( 565135.6, 4191013.6,      67.1,     213.0,       6.1);         ( 565145.6, 4191013.6,      67.4,     213.0,       6.1);
     ( 565155.6, 4191013.6,      67.7,     213.0,       6.1);         ( 565165.6, 4191013.6,      68.1,     213.0,       6.1);
     ( 565175.6, 4191013.6,      68.8,     213.0,       6.1);         ( 565185.6, 4191013.6,      69.4,     213.0,       6.1);
     ( 565195.6, 4191013.6,      70.0,     213.0,       6.1);         ( 565205.6, 4191013.6,      70.3,     213.0,       6.1);
     ( 565235.6, 4191013.6,      71.3,     213.0,       6.1);         ( 565245.6, 4191013.6,      71.7,     213.0,       6.1);
     ( 565255.6, 4191013.6,      72.1,     213.0,       6.1);         ( 565265.6, 4191013.6,      72.8,     213.0,       6.1);
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     ( 565275.6, 4191013.6,      73.4,     213.0,       6.1);         ( 565295.6, 4191013.6,      73.9,     213.0,       6.1);
     ( 565305.6, 4191013.6,      74.0,     213.0,       6.1);         ( 565315.6, 4191013.6,      74.1,     213.0,       6.1);
     ( 565325.6, 4191013.6,      74.8,     213.0,       6.1);         ( 565335.6, 4191013.6,      75.4,     213.0,       6.1);
     ( 565345.6, 4191013.6,      76.0,     213.0,       6.1);         ( 565355.6, 4191013.6,      76.3,     213.0,       6.1);
     ( 565365.6, 4191013.6,      76.6,     213.0,       6.1);         ( 565375.6, 4191013.6,      77.0,     213.0,       6.1);
     ( 565385.6, 4191013.6,      77.3,     213.0,       6.1);         ( 565395.6, 4191013.6,      77.7,     213.0,       6.1);
     ( 565425.6, 4191013.6,      78.7,     213.0,       6.1);         ( 565435.6, 4191013.6,      79.1,     213.0,       6.1);
     ( 565445.6, 4191013.6,      79.8,     213.0,       6.1);         ( 565455.6, 4191013.6,      80.4,     213.0,       6.1);
     ( 565465.6, 4191013.6,      81.0,     213.0,       6.1);         ( 565475.6, 4191013.6,      81.3,     213.0,       6.1);
     ( 565485.6, 4191013.6,      81.6,     213.0,       6.1);         ( 565495.6, 4191013.6,      82.0,     213.0,       6.1);
     ( 565505.6, 4191013.6,      82.3,     213.0,       6.1);         ( 565535.6, 4191013.6,      83.4,     213.0,       6.1);
     ( 565545.6, 4191013.6,      83.7,     213.0,       6.1);         ( 565555.6, 4191013.6,      84.1,     213.0,       6.1);
     ( 565565.6, 4191013.6,      84.8,     213.0,       6.1);         ( 565575.6, 4191013.6,      85.4,     213.0,       6.1);
     ( 565585.6, 4191013.6,      86.0,     213.0,       6.1);         ( 565595.6, 4191013.6,      86.3,     213.0,       6.1);
     ( 565605.6, 4191013.6,      86.7,     213.0,       6.1);         ( 565615.6, 4191013.6,      87.1,     213.0,       6.1);
     ( 565625.6, 4191013.6,      87.8,     213.0,       6.1);         ( 565045.6, 4191023.6,      65.3,     213.0,       6.1);
     ( 565055.6, 4191023.6,      65.6,     213.0,       6.1);         ( 565065.6, 4191023.6,      66.0,     213.0,       6.1);
     ( 565075.6, 4191023.6,      66.3,     213.0,       6.1);         ( 565085.6, 4191023.6,      66.5,     213.0,       6.1);     ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***        14:10:30
                                                                                                                  PAGE 126
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     ( 565095.6, 4191023.6,      66.8,     213.0,       6.1);         ( 565105.6, 4191023.6,      67.0,     213.0,       6.1);
     ( 565115.6, 4191023.6,      67.1,     213.0,       6.1);         ( 565125.6, 4191023.6,      67.2,     213.0,       6.1);
     ( 565135.6, 4191023.6,      67.3,     213.0,       6.1);         ( 565145.6, 4191023.6,      67.6,     213.0,       6.1);
     ( 565155.6, 4191023.6,      68.0,     213.0,       6.1);         ( 565165.6, 4191023.6,      68.4,     213.0,       6.1);
     ( 565175.6, 4191023.6,      69.0,     213.0,       6.1);         ( 565185.6, 4191023.6,      69.5,     213.0,       6.1);
     ( 565195.6, 4191023.6,      70.1,     213.0,       6.1);         ( 565205.6, 4191023.6,      70.5,     213.0,       6.1);
     ( 565235.6, 4191023.6,      71.6,     213.0,       6.1);         ( 565245.6, 4191023.6,      72.0,     213.0,       6.1);
     ( 565255.6, 4191023.6,      72.4,     213.0,       6.1);         ( 565265.6, 4191023.6,      73.0,     213.0,       6.1);
     ( 565275.6, 4191023.6,      73.5,     213.0,       6.1);         ( 565295.6, 4191023.6,      74.1,     213.0,       6.1);
     ( 565305.6, 4191023.6,      74.2,     213.0,       6.1);         ( 565315.6, 4191023.6,      74.4,     213.0,       6.1);
     ( 565325.6, 4191023.6,      75.0,     213.0,       6.1);         ( 565335.6, 4191023.6,      75.5,     213.0,       6.1);
     ( 565345.6, 4191023.6,      76.1,     213.0,       6.1);         ( 565355.6, 4191023.6,      76.5,     213.0,       6.1);
     ( 565365.6, 4191023.6,      76.9,     213.0,       6.1);         ( 565375.6, 4191023.6,      77.3,     213.0,       6.1);
     ( 565385.6, 4191023.6,      77.6,     213.0,       6.1);         ( 565395.6, 4191023.6,      78.0,     213.0,       6.1);
     ( 565425.6, 4191023.6,      79.0,     213.0,       6.1);         ( 565435.6, 4191023.6,      79.4,     213.0,       6.1);
     ( 565465.6, 4191023.6,      81.1,     213.0,       6.1);         ( 565475.6, 4191023.6,      81.5,     213.0,       6.1);
     ( 565485.6, 4191023.6,      81.9,     213.0,       6.1);         ( 565495.6, 4191023.6,      82.3,     213.0,       6.1);
     ( 565505.6, 4191023.6,      82.6,     213.0,       6.1);         ( 565535.6, 4191023.6,      83.6,     213.0,       6.1);
     ( 565545.6, 4191023.6,      84.0,     213.0,       6.1);         ( 565555.6, 4191023.6,      84.4,     213.0,       6.1);
     ( 565565.6, 4191023.6,      85.0,     213.0,       6.1);         ( 565575.6, 4191023.6,      85.7,     213.0,       6.1);
     ( 565585.6, 4191023.6,      86.3,     213.0,       6.1);         ( 565595.6, 4191023.6,      86.6,     213.0,       6.1);
     ( 565605.6, 4191023.6,      87.0,     213.0,       6.1);         ( 565615.6, 4191023.6,      87.4,     213.0,       6.1);
     ( 565625.6, 4191023.6,      88.0,     213.0,       6.1);         ( 565045.6, 4191033.6,      65.6,     213.0,       6.1);
     ( 565055.6, 4191033.6,      66.0,     213.0,       6.1);         ( 565065.6, 4191033.6,      66.3,     213.0,       6.1);
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     ( 565075.6, 4191033.6,      66.6,     213.0,       6.1);         ( 565135.6, 4191033.6,      67.6,     213.0,       6.1);
     ( 565145.6, 4191033.6,      68.0,     213.0,       6.1);         ( 565155.6, 4191033.6,      68.3,     213.0,       6.1);
     ( 565165.6, 4191033.6,      68.7,     213.0,       6.1);         ( 565175.6, 4191033.6,      69.1,     213.0,       6.1);
     ( 565185.6, 4191033.6,      69.6,     213.0,       6.1);         ( 565195.6, 4191033.6,      70.1,     213.0,       6.1);
     ( 565205.6, 4191033.6,      70.6,     213.0,       6.1);         ( 565265.6, 4191033.6,      73.1,     213.0,       6.1);
     ( 565275.6, 4191033.6,      73.6,     213.0,       6.1);         ( 565295.6, 4191033.6,      74.2,     213.0,       6.1);
     ( 565305.6, 4191033.6,      74.4,     213.0,       6.1);         ( 565315.6, 4191033.6,      74.7,     213.0,       6.1);
     ( 565325.6, 4191033.6,      75.1,     213.0,       6.1);         ( 565335.6, 4191033.6,      75.6,     213.0,       6.1);
     ( 565345.6, 4191033.6,      76.1,     213.0,       6.1);         ( 565355.6, 4191033.6,      76.6,     213.0,       6.1);
     ( 565365.6, 4191033.6,      77.2,     213.0,       6.1);         ( 565375.6, 4191033.6,      77.6,     213.0,       6.1);
     ( 565385.6, 4191033.6,      78.0,     213.0,       6.1);         ( 565465.6, 4191033.6,      81.1,     213.0,       6.1);
     ( 565475.6, 4191033.6,      81.6,     213.0,       6.1);         ( 565485.6, 4191033.6,      82.2,     213.0,       6.1);
     ( 565495.6, 4191033.6,      82.6,     213.0,       6.1);         ( 565505.6, 4191033.6,      83.0,     213.0,       6.1);
     ( 565535.6, 4191033.6,      84.0,     213.0,       6.1);         ( 565545.6, 4191033.6,      84.3,     213.0,       6.1);
     ( 565555.6, 4191033.6,      84.7,     213.0,       6.1);         ( 565565.6, 4191033.6,      85.4,     213.0,       6.1);
     ( 565575.6, 4191033.6,      86.0,     213.0,       6.1);         ( 565585.6, 4191033.6,      86.6,     213.0,       6.1);
     ( 565595.6, 4191033.6,      87.0,     213.0,       6.1);         ( 565605.6, 4191033.6,      87.3,     213.0,       6.1);
     ( 565615.6, 4191033.6,      87.7,     213.0,       6.1);         ( 565625.6, 4191033.6,      88.1,     213.0,       6.1);
     ( 565045.6, 4191043.6,      66.0,     213.0,       6.1);         ( 565055.6, 4191043.6,      66.3,     213.0,       6.1);
     ( 565065.6, 4191043.6,      66.6,     213.0,       6.1);         ( 565075.6, 4191043.6,      66.9,     213.0,       6.1);
     ( 565135.6, 4191043.6,      68.0,     213.0,       6.1);         ( 565145.6, 4191043.6,      68.3,     213.0,       6.1);  ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:10:30
                                                                                                                        PAGE 127
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                    (METERS)

     ( 565155.6, 4191043.6,      68.6,     213.0,       6.1);         ( 565165.6, 4191043.6,      69.0,     213.0,       6.1);
     ( 565175.6, 4191043.6,      69.3,     213.0,       6.1);         ( 565185.6, 4191043.6,      69.7,     213.0,       6.1);
     ( 565195.6, 4191043.6,      70.1,     213.0,       6.1);         ( 565205.6, 4191043.6,      70.8,     213.0,       6.1);
     ( 565265.6, 4191043.6,      73.3,     213.0,       6.1);         ( 565275.6, 4191043.6,      73.7,     213.0,       6.1);
     ( 565295.6, 4191043.6,      74.4,     213.0,       6.1);         ( 565305.6, 4191043.6,      74.7,     213.0,       6.1);
     ( 565315.6, 4191043.6,      75.0,     213.0,       6.1);         ( 565325.6, 4191043.6,      75.3,     213.0,       6.1);
     ( 565335.6, 4191043.6,      75.7,     213.0,       6.1);         ( 565345.6, 4191043.6,      76.1,     213.0,       6.1);
     ( 565355.6, 4191043.6,      76.8,     213.0,       6.1);         ( 565365.6, 4191043.6,      77.4,     213.0,       6.1);
     ( 565375.6, 4191043.6,      78.0,     213.0,       6.1);         ( 565385.6, 4191043.6,      78.3,     213.0,       6.1);
     ( 565465.6, 4191043.6,      81.1,     213.0,       6.1);         ( 565475.6, 4191043.6,      81.8,     213.0,       6.1);
     ( 565485.6, 4191043.6,      82.4,     213.0,       6.1);         ( 565495.6, 4191043.6,      83.0,     213.0,       6.1);
     ( 565505.6, 4191043.6,      83.3,     213.0,       6.1);         ( 565535.6, 4191043.6,      84.3,     213.0,       6.1);
     ( 565545.6, 4191043.6,      84.6,     213.0,       6.1);         ( 565555.6, 4191043.6,      85.0,     213.0,       6.1);
     ( 565565.6, 4191043.6,      85.7,     213.0,       6.1);         ( 565575.6, 4191043.6,      86.4,     213.0,       6.1);
     ( 565585.6, 4191043.6,      87.0,     213.0,       6.1);         ( 565595.6, 4191043.6,      87.3,     213.0,       6.1);
     ( 565605.6, 4191043.6,      87.6,     213.0,       6.1);         ( 565615.6, 4191043.6,      88.0,     213.0,       6.1);
     ( 565625.6, 4191043.6,      88.3,     213.0,       6.1);         ( 565045.6, 4191053.6,      66.3,     213.0,       6.1);
     ( 565055.6, 4191053.6,      66.5,     213.0,       6.1);         ( 565065.6, 4191053.6,      66.8,     213.0,       6.1);
     ( 565075.6, 4191053.6,      67.0,     213.0,       6.1);         ( 565105.6, 4191053.6,      67.3,     213.0,       6.1);
     ( 565115.6, 4191053.6,      67.6,     213.0,       6.1);         ( 565155.6, 4191053.6,      69.0,     213.0,       6.1);
     ( 565165.6, 4191053.6,      69.3,     213.0,       6.1);         ( 565175.6, 4191053.6,      69.6,     213.0,       6.1);
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     ( 565185.6, 4191053.6,      70.0,     213.0,       6.1);         ( 565195.6, 4191053.6,      70.4,     213.0,       6.1);
     ( 565205.6, 4191053.6,      71.0,     213.0,       6.1);         ( 565235.6, 4191053.6,      72.4,     213.0,       6.1);
     ( 565245.6, 4191053.6,      72.7,     213.0,       6.1);         ( 565255.6, 4191053.6,      73.1,     213.0,       6.1);
     ( 565265.6, 4191053.6,      73.4,     213.0,       6.1);         ( 565275.6, 4191053.6,      73.7,     213.0,       6.1);
     ( 565295.6, 4191053.6,      74.5,     213.0,       6.1);         ( 565305.6, 4191053.6,      74.9,     213.0,       6.1);
     ( 565315.6, 4191053.6,      75.3,     213.0,       6.1);         ( 565325.6, 4191053.6,      75.6,     213.0,       6.1);
     ( 565335.6, 4191053.6,      76.0,     213.0,       6.1);         ( 565345.6, 4191053.6,      76.4,     213.0,       6.1);
     ( 565355.6, 4191053.6,      77.0,     213.0,       6.1);         ( 565365.6, 4191053.6,      77.5,     213.0,       6.1);
     ( 565375.6, 4191053.6,      78.1,     213.0,       6.1);         ( 565385.6, 4191053.6,      78.5,     213.0,       6.1);
     ( 565465.6, 4191053.6,      81.4,     213.0,       6.1);         ( 565475.6, 4191053.6,      82.0,     213.0,       6.1);
     ( 565485.6, 4191053.6,      82.5,     213.0,       6.1);         ( 565495.6, 4191053.6,      83.1,     213.0,       6.1);
     ( 565505.6, 4191053.6,      83.4,     213.0,       6.1);         ( 565535.6, 4191053.6,      84.5,     213.0,       6.1);
     ( 565545.6, 4191053.6,      84.9,     213.0,       6.1);         ( 565555.6, 4191053.6,      85.4,     213.0,       6.1);
     ( 565565.6, 4191053.6,      86.0,     213.0,       6.1);         ( 565575.6, 4191053.6,      86.5,     213.0,       6.1);
     ( 565585.6, 4191053.6,      87.1,     213.0,       6.1);         ( 565595.6, 4191053.6,      87.5,     213.0,       6.1);
     ( 565605.6, 4191053.6,      87.9,     213.0,       6.1);         ( 565615.6, 4191053.6,      88.3,     213.0,       6.1);
     ( 565625.6, 4191053.6,      88.6,     213.0,       6.1);         ( 565045.6, 4191063.6,      66.6,     213.0,       6.1);
     ( 565055.6, 4191063.6,      66.8,     213.0,       6.1);         ( 565065.6, 4191063.6,      66.9,     213.0,       6.1);
     ( 565075.6, 4191063.6,      67.0,     213.0,       6.1);         ( 565095.6, 4191063.6,      67.4,     213.0,       6.1);
     ( 565105.6, 4191063.6,      67.6,     213.0,       6.1);         ( 565115.6, 4191063.6,      68.0,     213.0,       6.1);
     ( 565125.6, 4191063.6,      68.3,     213.0,       6.1);         ( 565135.6, 4191063.6,      68.6,     213.0,       6.1);
     ( 565145.6, 4191063.6,      69.0,     213.0,       6.1);         ( 565155.6, 4191063.6,      69.3,     213.0,       6.1);
     ( 565165.6, 4191063.6,      69.6,     213.0,       6.1);         ( 565175.6, 4191063.6,      70.0,     213.0,       6.1);
     ( 565185.6, 4191063.6,      70.3,     213.0,       6.1);         ( 565195.6, 4191063.6,      70.7,     213.0,       6.1);  ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***        14:10:30
                                                                                                                  PAGE 128
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                   (METERS)

     ( 565205.6, 4191063.6,      71.1,     213.0,       6.1);         ( 565235.6, 4191063.6,      72.4,     213.0,       6.1);
     ( 565245.6, 4191063.6,      72.7,     213.0,       6.1);         ( 565255.6, 4191063.6,      73.1,     213.0,       6.1);
     ( 565265.6, 4191063.6,      73.4,     213.0,       6.1);         ( 565275.6, 4191063.6,      73.7,     213.0,       6.1);
     ( 565295.6, 4191063.6,      74.6,     213.0,       6.1);         ( 565305.6, 4191063.6,      75.2,     213.0,       6.1);
     ( 565315.6, 4191063.6,      75.6,     213.0,       6.1);         ( 565325.6, 4191063.6,      76.0,     213.0,       6.1);
     ( 565335.6, 4191063.6,      76.3,     213.0,       6.1);         ( 565345.6, 4191063.6,      76.7,     213.0,       6.1);
     ( 565355.6, 4191063.6,      77.1,     213.0,       6.1);         ( 565365.6, 4191063.6,      77.6,     213.0,       6.1);
     ( 565375.6, 4191063.6,      78.1,     213.0,       6.1);         ( 565385.6, 4191063.6,      78.6,     213.0,       6.1);
     ( 565485.6, 4191063.6,      82.6,     213.0,       6.1);         ( 565495.6, 4191063.6,      83.1,     213.0,       6.1);
     ( 565505.6, 4191063.6,      83.4,     213.0,       6.1);         ( 565535.6, 4191063.6,      84.6,     213.0,       6.1);
     ( 565545.6, 4191063.6,      85.2,     213.0,       6.1);         ( 565555.6, 4191063.6,      85.7,     213.0,       6.1);
     ( 565565.6, 4191063.6,      86.1,     213.0,       6.1);         ( 565575.6, 4191063.6,      86.6,     213.0,       6.1);
     ( 565585.6, 4191063.6,      87.1,     213.0,       6.1);         ( 565595.6, 4191063.6,      87.6,     213.0,       6.1);
     ( 565605.6, 4191063.6,      88.2,     213.0,       6.1);         ( 565615.6, 4191063.6,      88.6,     213.0,       6.1);
     ( 565065.6, 4191073.6,      67.0,     213.0,       6.1);         ( 565075.6, 4191073.6,      67.1,     213.0,       6.1);
     ( 565095.6, 4191073.6,      67.7,     213.0,       6.1);         ( 565105.6, 4191073.6,      68.0,     213.0,       6.1);
     ( 565115.6, 4191073.6,      68.3,     213.0,       6.1);         ( 565125.6, 4191073.6,      68.6,     213.0,       6.1);
     ( 565135.6, 4191073.6,      69.0,     213.0,       6.1);         ( 565145.6, 4191073.6,      69.3,     213.0,       6.1);
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```
     ( 565155.6, 4191073.6,      69.6,     213.0,       6.1);         ( 565165.6, 4191073.6,      70.0,     213.0,       6.1);
     ( 565175.6, 4191073.6,      70.3,     213.0,       6.1);         ( 565185.6, 4191073.6,      70.6,     213.0,       6.1);
     ( 565195.6, 4191073.6,      71.0,     213.0,       6.1);         ( 565205.6, 4191073.6,      71.3,     213.0,       6.1);
     ( 565235.6, 4191073.6,      72.4,     213.0,       6.1);         ( 565245.6, 4191073.6,      72.7,     213.0,       6.1);
     ( 565255.6, 4191073.6,      73.1,     213.0,       6.1);         ( 565265.6, 4191073.6,      73.4,     213.0,       6.1);
     ( 565275.6, 4191073.6,      73.7,     213.0,       6.1);         ( 565295.6, 4191073.6,      74.8,     213.0,       6.1);
     ( 565305.6, 4191073.6,      75.4,     213.0,       6.1);         ( 565315.6, 4191073.6,      76.0,     213.0,       6.1);
     ( 565325.6, 4191073.6,      76.3,     213.0,       6.1);         ( 565335.6, 4191073.6,      76.6,     213.0,       6.1);
     ( 565345.6, 4191073.6,      77.0,     213.0,       6.1);         ( 565355.6, 4191073.6,      77.3,     213.0,       6.1);
     ( 565365.6, 4191073.6,      77.7,     213.0,       6.1);         ( 565375.6, 4191073.6,      78.1,     213.0,       6.1);
     ( 565385.6, 4191073.6,      78.8,     213.0,       6.1);         ( 565465.6, 4191073.6,      82.0,     213.0,       6.1);
     ( 565475.6, 4191073.6,      82.3,     213.0,       6.1);         ( 565485.6, 4191073.6,      82.7,     213.0,       6.1);
     ( 565495.6, 4191073.6,      83.1,     213.0,       6.1);         ( 565505.6, 4191073.6,      83.4,     213.0,       6.1);
     ( 565535.6, 4191073.6,      84.8,     213.0,       6.1);         ( 565545.6, 4191073.6,      85.4,     213.0,       6.1);
     ( 565555.6, 4191073.6,      86.0,     213.0,       6.1);         ( 565565.6, 4191073.6,      86.3,     213.0,       6.1);
     ( 565575.6, 4191073.6,      86.7,     213.0,       6.1);         ( 565585.6, 4191073.6,      87.1,     213.0,       6.1);
     ( 565595.6, 4191073.6,      87.8,     213.0,       6.1);         ( 565605.6, 4191073.6,      88.4,     213.0,       6.1);
     ( 565615.6, 4191073.6,      89.0,     213.0,       6.1);         ( 565105.6, 4191083.6,      68.3,     213.0,       6.1);
     ( 565115.6, 4191083.6,      68.6,     213.0,       6.1);         ( 565125.6, 4191083.6,      69.0,     213.0,       6.1);
     ( 565135.6, 4191083.6,      69.3,     213.0,       6.1);         ( 565145.6, 4191083.6,      69.5,     213.0,       6.1);
     ( 565155.6, 4191083.6,      69.8,     213.0,       6.1);         ( 565165.6, 4191083.6,      70.1,     213.0,       6.1);
     ( 565175.6, 4191083.6,      70.4,     213.0,       6.1);         ( 565185.6, 4191083.6,      70.7,     213.0,       6.1);
     ( 565195.6, 4191083.6,      71.1,     213.0,       6.1);         ( 565205.6, 4191083.6,      71.4,     213.0,       6.1);
     ( 565235.6, 4191083.6,      72.4,     213.0,       6.1);         ( 565245.6, 4191083.6,      72.7,     213.0,       6.1);
     ( 565255.6, 4191083.6,      73.1,     213.0,       6.1);         ( 565265.6, 4191083.6,      73.5,     213.0,       6.1);
     ( 565275.6, 4191083.6,      73.9,     213.0,       6.1);         ( 565295.6, 4191083.6,      75.0,     213.0,       6.1);
     ( 565305.6, 4191083.6,      75.5,     213.0,       6.1);         ( 565315.6, 4191083.6,      76.1,     213.0,       6.1);    ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***       14:10:30
                                                                                                                PAGE 129

 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     ( 565325.6, 4191083.6,      76.5,     213.0,       6.1);         ( 565335.6, 4191083.6,      76.9,     213.0,       6.1);
     ( 565345.6, 4191083.6,      77.3,     213.0,       6.1);         ( 565355.6, 4191083.6,      77.6,     213.0,       6.1);
     ( 565365.6, 4191083.6,      78.0,     213.0,       6.1);         ( 565375.6, 4191083.6,      78.4,     213.0,       6.1);
     ( 565385.6, 4191083.6,      79.0,     213.0,       6.1);         ( 565475.6, 4191083.6,      82.6,     213.0,       6.1);
     ( 565485.6, 4191083.6,      83.0,     213.0,       6.1);         ( 565495.6, 4191083.6,      83.3,     213.0,       6.1);
     ( 565505.6, 4191083.6,      83.7,     213.0,       6.1);         ( 565535.6, 4191083.6,      85.2,     213.0,       6.1);
     ( 565545.6, 4191083.6,      85.8,     213.0,       6.1);         ( 565555.6, 4191083.6,      86.3,     213.0,       6.1);
     ( 565565.6, 4191083.6,      86.6,     213.0,       6.1);         ( 565575.6, 4191083.6,      87.0,     213.0,       6.1);
     ( 565585.6, 4191083.6,      87.4,     213.0,       6.1);         ( 565595.6, 4191083.6,      88.0,     213.0,       6.1);
     ( 565605.6, 4191083.6,      88.7,     213.0,       6.1);         ( 565615.6, 4191083.6,      89.3,     213.0,       6.1);
     ( 565035.6, 4191093.6,      66.9,     213.0,       6.1);         ( 565045.6, 4191093.6,      67.0,     213.0,       6.1);
     ( 565175.6, 4191093.6,      70.4,     213.0,       6.1);         ( 565185.6, 4191093.6,      70.7,     213.0,       6.1);
     ( 565195.6, 4191093.6,      71.1,     213.0,       6.1);         ( 565205.6, 4191093.6,      71.4,     213.0,       6.1);
     ( 565235.6, 4191093.6,      72.4,     213.0,       6.1);         ( 565245.6, 4191093.6,      72.7,     213.0,       6.1);
     ( 565255.6, 4191093.6,      73.1,     213.0,       6.1);         ( 565265.6, 4191093.6,      73.6,     213.0,       6.1);
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     ( 565275.6, 4191093.6,      74.2,     213.0,       6.1);         ( 565295.6, 4191093.6,      75.1,     213.0,       6.1);
     ( 565305.6, 4191093.6,      75.6,     213.0,       6.1);         ( 565315.6, 4191093.6,      76.1,     213.0,       6.1);
     ( 565325.6, 4191093.6,      76.6,     213.0,       6.1);         ( 565335.6, 4191093.6,      77.2,     213.0,       6.1);
     ( 565345.6, 4191093.6,      77.6,     213.0,       6.1);         ( 565355.6, 4191093.6,      78.0,     213.0,       6.1);
     ( 565365.6, 4191093.6,      78.3,     213.0,       6.1);         ( 565375.6, 4191093.6,      78.7,     213.0,       6.1);
     ( 565385.6, 4191093.6,      79.4,     213.0,       6.1);         ( 565535.6, 4191093.6,      85.7,     213.0,       6.1);
     ( 565545.6, 4191093.6,      86.2,     213.0,       6.1);         ( 565555.6, 4191093.6,      86.6,     213.0,       6.1);
     ( 565565.6, 4191093.6,      87.0,     213.0,       6.1);         ( 565575.6, 4191093.6,      87.3,     213.0,       6.1);
     ( 565585.6, 4191093.6,      87.7,     213.0,       6.1);         ( 565595.6, 4191093.6,      88.4,     213.0,       6.1);
     ( 565605.6, 4191093.6,      89.0,     213.0,       6.1);         ( 565615.6, 4191093.6,      89.6,     213.0,       6.1);
     ( 565035.6, 4191103.6,      67.0,     213.0,       6.1);         ( 565045.6, 4191103.6,      67.1,     213.0,       6.1);
     ( 565055.6, 4191103.6,      67.4,     213.0,       6.1);         ( 565065.6, 4191103.6,      67.7,     213.0,       6.1);
     ( 565075.6, 4191103.6,      68.0,     213.0,       6.1);         ( 565235.6, 4191103.6,      72.4,     213.0,       6.1);
     ( 565245.6, 4191103.6,      72.7,     213.0,       6.1);         ( 565255.6, 4191103.6,      73.1,     213.0,       6.1);
     ( 565265.6, 4191103.6,      73.8,     213.0,       6.1);         ( 565275.6, 4191103.6,      74.4,     213.0,       6.1);
     ( 565295.6, 4191103.6,      75.3,     213.0,       6.1);         ( 565305.6, 4191103.6,      75.7,     213.0,       6.1);
     ( 565315.6, 4191103.6,      76.1,     213.0,       6.1);         ( 565325.6, 4191103.6,      76.8,     213.0,       6.1);
     ( 565335.6, 4191103.6,      77.4,     213.0,       6.1);         ( 565345.6, 4191103.6,      78.0,     213.0,       6.1);
     ( 565355.6, 4191103.6,      78.3,     213.0,       6.1);         ( 565365.6, 4191103.6,      78.6,     213.0,       6.1);
     ( 565375.6, 4191103.6,      79.0,     213.0,       6.1);         ( 565385.6, 4191103.6,      79.7,     213.0,       6.1);
     ( 565485.6, 4191103.6,      83.6,     213.0,       6.1);         ( 565495.6, 4191103.6,      84.0,     213.0,       6.1);
     ( 565505.6, 4191103.6,      84.7,     213.0,       6.1);         ( 565525.6, 4191103.6,      85.9,     213.0,       6.1);
     ( 565535.6, 4191103.6,      86.3,     213.0,       6.1);         ( 565545.6, 4191103.6,      86.6,     213.0,       6.1);
     ( 565555.6, 4191103.6,      87.0,     213.0,       6.1);         ( 565565.6, 4191103.6,      87.3,     213.0,       6.1);
     ( 565575.6, 4191103.6,      87.6,     213.0,       6.1);         ( 565585.6, 4191103.6,      88.0,     213.0,       6.1);
     ( 565595.6, 4191103.6,      88.7,     213.0,       6.1);         ( 565605.6, 4191103.6,      89.4,     213.0,       6.1);
     ( 565615.6, 4191103.6,      90.0,     213.0,       6.1);         ( 565025.6, 4191113.6,      67.2,     213.0,       6.1);
     ( 565035.6, 4191113.6,      67.2,     213.0,       6.1);         ( 565045.6, 4191113.6,      67.3,     213.0,       6.1);
     ( 565055.6, 4191113.6,      67.6,     213.0,       6.1);         ( 565065.6, 4191113.6,      68.0,     213.0,       6.1);
     ( 565075.6, 4191113.6,      68.3,     213.0,       6.1);         ( 565125.6, 4191113.6,      69.7,     213.0,       6.1);  ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***         11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***        14:10:30
                                                                                                                  PAGE 130
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     ( 565135.6, 4191113.6,      70.0,     213.0,       6.1);         ( 565145.6, 4191113.6,      70.1,     213.0,       6.1);
     ( 565155.6, 4191113.6,      70.2,     213.0,       6.1);         ( 565165.6, 4191113.6,      70.3,     213.0,       6.1);
     ( 565175.6, 4191113.6,      70.6,     213.0,       6.1);         ( 565185.6, 4191113.6,      71.0,     213.0,       6.1);
     ( 565195.6, 4191113.6,      71.3,     213.0,       6.1);         ( 565205.6, 4191113.6,      71.6,     213.0,       6.1);
     ( 565295.6, 4191113.6,      75.5,     213.0,       6.1);         ( 565305.6, 4191113.6,      75.9,     213.0,       6.1);
     ( 565315.6, 4191113.6,      76.4,     213.0,       6.1);         ( 565325.6, 4191113.6,      77.0,     213.0,       6.1);
     ( 565335.6, 4191113.6,      77.5,     213.0,       6.1);         ( 565345.6, 4191113.6,      78.1,     213.0,       6.1);
     ( 565355.6, 4191113.6,      78.4,     213.0,       6.1);         ( 565365.6, 4191113.6,      78.7,     213.0,       6.1);
     ( 565375.6, 4191113.6,      79.1,     213.0,       6.1);         ( 565385.6, 4191113.6,      79.8,     213.0,       6.1);
     ( 565485.6, 4191113.6,      83.7,     213.0,       6.1);         ( 565495.6, 4191113.6,      84.1,     213.0,       6.1);
     ( 565505.6, 4191113.6,      84.8,     213.0,       6.1);         ( 565525.6, 4191113.6,      86.1,     213.0,       6.1);
     ( 565535.6, 4191113.6,      86.5,     213.0,       6.1);         ( 565545.6, 4191113.6,      86.9,     213.0,       6.1);
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    ( 565555.6, 4191113.6,      87.3,     213.0,       6.1);         ( 565565.6, 4191113.6,      87.6,     213.0,       6.1);
    ( 565575.6, 4191113.6,      88.0,     213.0,       6.1);         ( 565585.6, 4191113.6,      88.4,     213.0,       6.1);
    ( 565595.6, 4191113.6,      89.0,     213.0,       6.1);         ( 565605.6, 4191113.6,      89.7,     213.0,       6.1);
    ( 565615.6, 4191113.6,      90.3,     213.0,       6.1);         ( 565025.6, 4191123.6,      67.6,     213.0,       6.1);
    ( 565035.6, 4191123.6,      67.6,     213.0,       6.1);         ( 565045.6, 4191123.6,      67.6,     213.0,       6.1);
    ( 565055.6, 4191123.6,      68.0,     213.0,       6.1);         ( 565065.6, 4191123.6,      68.3,     213.0,       6.1);
    ( 565125.6, 4191123.6,      69.7,     213.0,       6.1);         ( 565135.6, 4191123.6,      70.0,     213.0,       6.1);
    ( 565145.6, 4191123.6,      70.2,     213.0,       6.1);         ( 565155.6, 4191123.6,      70.4,     213.0,       6.1);
    ( 565165.6, 4191123.6,      70.6,     213.0,       6.1);         ( 565175.6, 4191123.6,      71.0,     213.0,       6.1);
    ( 565185.6, 4191123.6,      71.3,     213.0,       6.1);         ( 565195.6, 4191123.6,      71.6,     213.0,       6.1);
    ( 565205.6, 4191123.6,      72.0,     213.0,       6.1);         ( 565245.6, 4191123.6,      73.3,     213.0,       6.1);
    ( 565335.6, 4191123.6,      77.6,     213.0,       6.1);         ( 565345.6, 4191123.6,      78.1,     213.0,       6.1);
    ( 565355.6, 4191123.6,      78.4,     213.0,       6.1);         ( 565365.6, 4191123.6,      78.7,     213.0,       6.1);
    ( 565375.6, 4191123.6,      79.1,     213.0,       6.1);         ( 565385.6, 4191123.6,      79.8,     213.0,       6.1);
    ( 565495.6, 4191123.6,      84.1,     213.0,       6.1);         ( 565525.6, 4191123.6,      86.1,     213.0,       6.1);
    ( 565535.6, 4191123.6,      86.6,     213.0,       6.1);         ( 565545.6, 4191123.6,      87.2,     213.0,       6.1);
    ( 565555.6, 4191123.6,      87.6,     213.0,       6.1);         ( 565565.6, 4191123.6,      88.0,     213.0,       6.1);
    ( 565575.6, 4191123.6,      88.3,     213.0,       6.1);         ( 565585.6, 4191123.6,      88.7,     213.0,       6.1);
    ( 565595.6, 4191123.6,      89.4,     213.0,       6.1);         ( 565605.6, 4191123.6,      90.0,     213.0,       6.1);
    ( 565615.6, 4191123.6,      90.6,     213.0,       6.1);         ( 565025.6, 4191133.6,      67.9,     213.0,       6.1);
    ( 565035.6, 4191133.6,      67.9,     213.0,       6.1);         ( 565045.6, 4191133.6,      68.0,     213.0,       6.1);
    ( 565055.6, 4191133.6,      68.3,     213.0,       6.1);         ( 565065.6, 4191133.6,      68.6,     213.0,       6.1);
    ( 565125.6, 4191133.6,      69.7,     213.0,       6.1);         ( 565135.6, 4191133.6,      70.1,     213.0,       6.1);
    ( 565145.6, 4191133.6,      70.4,     213.0,       6.1);         ( 565155.6, 4191133.6,      70.7,     213.0,       6.1);
    ( 565165.6, 4191133.6,      71.0,     213.0,       6.1);         ( 565175.6, 4191133.6,      71.3,     213.0,       6.1);
    ( 565185.6, 4191133.6,      71.6,     213.0,       6.1);         ( 565195.6, 4191133.6,      72.0,     213.0,       6.1);
    ( 565205.6, 4191133.6,      72.3,     213.0,       6.1);         ( 565245.6, 4191133.6,      73.6,     213.0,       6.1);
    ( 565265.6, 4191133.6,      74.3,     213.0,       6.1);         ( 565485.6, 4191133.6,      83.7,     213.0,       6.1);
    ( 565495.6, 4191133.6,      84.1,     213.0,       6.1);         ( 565525.6, 4191133.6,      86.1,     213.0,       6.1);
    ( 565535.6, 4191133.6,      86.8,     213.0,       6.1);         ( 565545.6, 4191133.6,      87.4,     213.0,       6.1);
    ( 565555.6, 4191133.6,      88.0,     213.0,       6.1);         ( 565565.6, 4191133.6,      88.3,     213.0,       6.1);
    ( 565575.6, 4191133.6,      88.6,     213.0,       6.1);         ( 565585.6, 4191133.6,      89.0,     213.0,       6.1);
    ( 565595.6, 4191133.6,      89.7,     213.0,       6.1);         ( 565605.6, 4191133.6,      90.4,     213.0,       6.1);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 131
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

    ( 565615.6, 4191133.6,      90.9,     213.0,       6.1);         ( 565025.6, 4191143.6,      68.2,     213.0,       6.1);
    ( 565035.6, 4191143.6,      68.2,     213.0,       6.1);         ( 565045.6, 4191143.6,      68.3,     213.0,       6.1);
    ( 565055.6, 4191143.6,      68.6,     213.0,       6.1);         ( 565065.6, 4191143.6,      69.0,     213.0,       6.1);
    ( 565075.6, 4191143.6,      69.2,     213.0,       6.1);         ( 565085.6, 4191143.6,      69.2,     213.0,       6.1);
    ( 565095.6, 4191143.6,      69.2,     213.0,       6.1);         ( 565125.6, 4191143.6,      70.0,     213.0,       6.1);
    ( 565135.6, 4191143.6,      70.3,     213.0,       6.1);         ( 565145.6, 4191143.6,      70.6,     213.0,       6.1);
    ( 565155.6, 4191143.6,      71.0,     213.0,       6.1);         ( 565165.6, 4191143.6,      71.3,     213.0,       6.1);
    ( 565175.6, 4191143.6,      71.6,     213.0,       6.1);         ( 565185.6, 4191143.6,      72.0,     213.0,       6.1);
    ( 565195.6, 4191143.6,      72.3,     213.0,       6.1);         ( 565205.6, 4191143.6,      72.5,     213.0,       6.1);
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     ( 565245.6, 4191143.6,      73.7,     213.0,       6.1);         ( 565265.6, 4191143.6,      74.5,     213.0,       6.1);
     ( 565485.6, 4191143.6,      84.2,     213.0,       6.1);         ( 565495.6, 4191143.6,      84.6,     213.0,       6.1);
     ( 565525.6, 4191143.6,      86.4,     213.0,       6.1);         ( 565535.6, 4191143.6,      87.0,     213.0,       6.1);
     ( 565545.6, 4191143.6,      87.7,     213.0,       6.1);         ( 565555.6, 4191143.6,      88.3,     213.0,       6.1);
     ( 565565.6, 4191143.6,      88.6,     213.0,       6.1);         ( 565575.6, 4191143.6,      89.0,     213.0,       6.1);
     ( 565585.6, 4191143.6,      89.4,     213.0,       6.1);         ( 565595.6, 4191143.6,      90.0,     213.0,       6.1);
     ( 565605.6, 4191143.6,      90.7,     213.0,       6.1);         ( 565615.6, 4191143.6,      91.2,     213.0,       6.1);
     ( 565025.6, 4191153.6,      68.6,     213.0,       6.1);         ( 565035.6, 4191153.6,      68.6,     213.0,       6.1);
     ( 565045.6, 4191153.6,      68.6,     213.0,       6.1);         ( 565055.6, 4191153.6,      69.0,     213.0,       6.1);
     ( 565065.6, 4191153.6,      69.3,     213.0,       6.1);         ( 565075.6, 4191153.6,      69.6,     213.0,       6.1);
     ( 565085.6, 4191153.6,      69.6,     213.0,       6.1);         ( 565095.6, 4191153.6,      69.6,     213.0,       6.1);
     ( 565105.6, 4191153.6,      69.6,     213.0,       6.1);         ( 565115.6, 4191153.6,      70.0,     213.0,       6.1);
     ( 565125.6, 4191153.6,      70.3,     213.0,       6.1);         ( 565135.6, 4191153.6,      70.6,     213.0,       6.1);
     ( 565145.6, 4191153.6,      71.0,     213.0,       6.1);         ( 565155.6, 4191153.6,      71.3,     213.0,       6.1);
     ( 565165.6, 4191153.6,      71.6,     213.0,       6.1);         ( 565175.6, 4191153.6,      72.0,     213.0,       6.1);
     ( 565185.6, 4191153.6,      72.3,     213.0,       6.1);         ( 565195.6, 4191153.6,      72.6,     213.0,       6.1);
     ( 565205.6, 4191153.6,      72.8,     213.0,       6.1);         ( 565265.6, 4191153.6,      74.6,     213.0,       6.1);
     ( 565525.6, 4191153.6,      86.7,     213.0,       6.1);         ( 565535.6, 4191153.6,      87.4,     213.0,       6.1);
     ( 565545.6, 4191153.6,      88.0,     213.0,       6.1);         ( 565555.6, 4191153.6,      88.6,     213.0,       6.1);
     ( 565565.6, 4191153.6,      89.0,     213.0,       6.1);         ( 565575.6, 4191153.6,      89.3,     213.0,       6.1);
     ( 565585.6, 4191153.6,      89.7,     213.0,       6.1);         ( 565595.6, 4191153.6,      90.4,     213.0,       6.1);
     ( 565605.6, 4191153.6,      91.0,     213.0,       6.1);         ( 565615.6, 4191153.6,      91.6,     213.0,       6.1);
     ( 565025.6, 4191163.6,      68.9,     213.0,       6.1);         ( 565035.6, 4191163.6,      68.9,     213.0,       6.1);
     ( 565045.6, 4191163.6,      69.0,     213.0,       6.1);         ( 565055.6, 4191163.6,      69.3,     213.0,       6.1);
     ( 565065.6, 4191163.6,      69.6,     213.0,       6.1);         ( 565075.6, 4191163.6,      69.9,     213.0,       6.1);
     ( 565085.6, 4191163.6,      69.9,     213.0,       6.1);         ( 565095.6, 4191163.6,      69.9,     213.0,       6.1);
     ( 565105.6, 4191163.6,      70.0,     213.0,       6.1);         ( 565115.6, 4191163.6,      70.3,     213.0,       6.1);
     ( 565125.6, 4191163.6,      70.6,     213.0,       6.1);         ( 565135.6, 4191163.6,      71.0,     213.0,       6.1);
     ( 565145.6, 4191163.6,      71.3,     213.0,       6.1);         ( 565155.6, 4191163.6,      71.6,     213.0,       6.1);
     ( 565165.6, 4191163.6,      72.0,     213.0,       6.1);         ( 565265.6, 4191163.6,      74.8,     213.0,       6.1);
     ( 565575.6, 4191163.6,      89.6,     213.0,       6.1);         ( 565585.6, 4191163.6,      90.0,     213.0,       6.1);
     ( 565595.6, 4191163.6,      90.7,     213.0,       6.1);         ( 565605.6, 4191163.6,      91.4,     213.0,       6.1);
     ( 565615.6, 4191163.6,      91.9,     213.0,       6.1);         ( 565025.6, 4191173.6,      69.2,     213.0,       6.1);
     ( 565035.6, 4191173.6,      69.2,     213.0,       6.1);         ( 565045.6, 4191173.6,      69.3,     213.0,       6.1);
     ( 565055.6, 4191173.6,      69.6,     213.0,       6.1);         ( 565065.6, 4191173.6,      70.0,     213.0,       6.1);
     ( 565075.6, 4191173.6,      70.2,     213.0,       6.1);         ( 565085.6, 4191173.6,      70.2,     213.0,       6.1);      ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:10:30
                                                                                                                        PAGE 132
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                    (METERS)

     ( 565095.6, 4191173.6,      70.2,     213.0,       6.1);         ( 565105.6, 4191173.6,      70.3,     213.0,       6.1);
     ( 565115.6, 4191173.6,      70.6,     213.0,       6.1);         ( 565125.6, 4191173.6,      71.0,     213.0,       6.1);
     ( 565135.6, 4191173.6,      71.3,     213.0,       6.1);         ( 565145.6, 4191173.6,      71.6,     213.0,       6.1);
     ( 565155.6, 4191173.6,      72.0,     213.0,       6.1);         ( 565165.6, 4191173.6,      72.3,     213.0,       6.1);
     ( 565495.6, 4191173.6,      86.1,     213.0,       6.1);         ( 565505.6, 4191173.6,      86.5,     213.0,       6.1);
     ( 565515.6, 4191173.6,      86.9,     213.0,       6.1);         ( 565525.6, 4191173.6,      87.4,     213.0,       6.1);
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     ( 565535.6, 4191173.6,      88.0,     213.0,       6.1);         ( 565545.6, 4191173.6,      88.5,     213.0,       6.1);
     ( 565125.6, 4191183.6,      71.3,     213.0,       6.1);         ( 565135.6, 4191183.6,      71.6,     213.0,       6.1);
     ( 565145.6, 4191183.6,      72.0,     213.0,       6.1);         ( 565155.6, 4191183.6,      72.3,     213.0,       6.1);
     ( 565165.6, 4191183.6,      72.6,     213.0,       6.1);         ( 565495.6, 4191183.6,      86.1,     213.0,       6.1);
     ( 565505.6, 4191183.6,      86.6,     213.0,       6.1);         ( 565515.6, 4191183.6,      87.2,     213.0,       6.1);
     ( 565525.6, 4191183.6,      87.7,     213.0,       6.1);         ( 565535.6, 4191183.6,      88.1,     213.0,       6.1);
     ( 565545.6, 4191183.6,      88.6,     213.0,       6.1);         ( 565555.6, 4191183.6,      89.1,     213.0,       6.1);
     ( 565565.6, 4191183.6,      89.6,     213.0,       6.1);         ( 565575.6, 4191183.6,      90.2,     213.0,       6.1);
     ( 565585.6, 4191183.6,      90.7,     213.0,       6.1);         ( 565595.6, 4191183.6,      91.1,     213.0,       6.1);
     ( 565165.6, 4191193.6,      72.9,     213.0,       6.1);         ( 565495.6, 4191193.6,      86.1,     213.0,       6.1);
     ( 565505.6, 4191193.6,      86.8,     213.0,       6.1);         ( 565515.6, 4191193.6,      87.4,     213.0,       6.1);
     ( 565525.6, 4191193.6,      88.0,     213.0,       6.1);         ( 565535.6, 4191193.6,      88.3,     213.0,       6.1);
     ( 565545.6, 4191193.6,      88.7,     213.0,       6.1);         ( 565555.6, 4191193.6,      89.1,     213.0,       6.1);
     ( 565565.6, 4191193.6,      89.8,     213.0,       6.1);         ( 565575.6, 4191193.6,      90.4,     213.0,       6.1);
     ( 565585.6, 4191193.6,      91.0,     213.0,       6.1);         ( 565595.6, 4191193.6,      91.3,     213.0,       6.1);
     ( 565605.6, 4191193.6,      91.7,     213.0,       6.1);         ( 565615.6, 4191193.6,      92.1,     213.0,       6.1);
     ( 565085.6, 4191203.6,      71.2,     213.0,       6.1);         ( 565495.6, 4191203.6,      86.4,     213.0,       6.1);
     ( 565505.6, 4191203.6,      87.0,     213.0,       6.1);         ( 565085.6, 4191213.6,      71.6,     213.0,       6.1);
     ( 565095.6, 4191213.6,      71.6,     213.0,       6.1);         ( 565125.6, 4191213.6,      72.3,     213.0,       6.1);
     ( 565135.6, 4191213.6,      72.6,     213.0,       6.1);         ( 565145.6, 4191213.6,      72.8,     213.0,       6.1);
     ( 565155.6, 4191213.6,      72.9,     213.0,       6.1);         ( 565165.6, 4191213.6,      73.0,     213.0,       6.1);
     ( 565175.6, 4191213.6,      73.2,     213.0,       6.1);         ( 565185.6, 4191213.6,      73.4,     213.0,       6.1);
     ( 565195.6, 4191213.6,      73.6,     213.0,       6.1);         ( 565085.6, 4191223.6,      71.9,     213.0,       6.1);
     ( 565095.6, 4191223.6,      71.9,     213.0,       6.1);         ( 565125.6, 4191223.6,      72.6,     213.0,       6.1);
     ( 565135.6, 4191223.6,      72.9,     213.0,       6.1);         ( 565145.6, 4191223.6,      72.9,     213.0,       6.1);
     ( 565155.6, 4191223.6,      73.0,     213.0,       6.1);         ( 565165.6, 4191223.6,      73.1,     213.0,       6.1);
     ( 565175.6, 4191223.6,      73.4,     213.0,       6.1);         ( 565185.6, 4191223.6,      73.7,     213.0,       6.1);
     ( 565195.6, 4191223.6,      74.0,     213.0,       6.1);         ( 565215.6, 4191223.6,      74.6,     213.0,       6.1);
     ( 565225.6, 4191223.6,      75.0,     213.0,       6.1);         ( 565595.6, 4191223.6,      91.4,     213.0,       6.1);
     ( 565605.6, 4191223.6,      91.7,     213.0,       6.1);         ( 565075.6, 4191233.6,      72.2,     213.0,       6.1);
     ( 565085.6, 4191233.6,      72.2,     213.0,       6.1);         ( 565095.6, 4191233.6,      72.2,     213.0,       6.1);
     ( 565125.6, 4191233.6,      72.8,     213.0,       6.1);         ( 565135.6, 4191233.6,      73.0,     213.0,       6.1);
     ( 565145.6, 4191233.6,      73.1,     213.0,       6.1);         ( 565155.6, 4191233.6,      73.2,     213.0,       6.1);
     ( 565165.6, 4191233.6,      73.3,     213.0,       6.1);         ( 565175.6, 4191233.6,      73.6,     213.0,       6.1);
     ( 565185.6, 4191233.6,      74.0,     213.0,       6.1);         ( 565195.6, 4191233.6,      74.3,     213.0,       6.1);
     ( 565215.6, 4191233.6,      75.0,     213.0,       6.1);         ( 565225.6, 4191233.6,      75.3,     213.0,       6.1);
     ( 565235.6, 4191233.6,      75.6,     213.0,       6.1);         ( 565245.6, 4191233.6,      76.0,     213.0,       6.1);
     ( 565255.6, 4191233.6,      76.3,     213.0,       6.1);         ( 565265.6, 4191233.6,      76.6,     213.0,       6.1);
     ( 565275.6, 4191233.6,      77.0,     213.0,       6.1);         ( 565285.6, 4191233.6,      77.3,     213.0,       6.1);     ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***        14:10:30
                                                                                                                  PAGE 133
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                     (METERS)

     ( 565295.6, 4191233.6,      77.6,     213.0,       6.1);         ( 565485.6, 4191233.6,      86.5,     213.0,       6.1);
     ( 565495.6, 4191233.6,      87.1,     213.0,       6.1);         ( 565505.6, 4191233.6,      87.4,     213.0,       6.1);
     ( 565515.6, 4191233.6,      87.7,     213.0,       6.1);         ( 565525.6, 4191233.6,      88.1,     213.0,       6.1);
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     ( 565535.6, 4191233.6,      88.8,     213.0,       6.1);         ( 565545.6, 4191233.6,      89.5,     213.0,       6.1);
     ( 565555.6, 4191233.6,      90.1,     213.0,       6.1);         ( 565565.6, 4191233.6,      90.4,     213.0,       6.1);
     ( 565575.6, 4191233.6,      90.7,     213.0,       6.1);         ( 565585.6, 4191233.6,      91.1,     213.0,       6.1);
     ( 565595.6, 4191233.6,      91.5,     213.0,       6.1);         ( 565605.6, 4191233.6,      91.9,     213.0,       6.1);
     ( 565025.6, 4191243.6,      71.2,     213.0,       6.1);         ( 565035.6, 4191243.6,      71.4,     213.0,       6.1);
     ( 565045.6, 4191243.6,      71.6,     213.0,       6.1);         ( 565125.6, 4191243.6,      72.9,     213.0,       6.1);
     ( 565135.6, 4191243.6,      73.0,     213.0,       6.1);         ( 565145.6, 4191243.6,      73.2,     213.0,       6.1);
     ( 565155.6, 4191243.6,      73.4,     213.0,       6.1);         ( 565165.6, 4191243.6,      73.6,     213.0,       6.1);
     ( 565175.6, 4191243.6,      74.0,     213.0,       6.1);         ( 565185.6, 4191243.6,      74.3,     213.0,       6.1);
     ( 565215.6, 4191243.6,      75.3,     213.0,       6.1);         ( 565225.6, 4191243.6,      75.6,     213.0,       6.1);
     ( 565235.6, 4191243.6,      76.0,     213.0,       6.1);         ( 565245.6, 4191243.6,      76.3,     213.0,       6.1);
     ( 565255.6, 4191243.6,      76.6,     213.0,       6.1);         ( 565265.6, 4191243.6,      77.0,     213.0,       6.1);
     ( 565485.6, 4191243.6,      86.6,     213.0,       6.1);         ( 565495.6, 4191243.6,      87.1,     213.0,       6.1);
     ( 565505.6, 4191243.6,      87.4,     213.0,       6.1);         ( 565515.6, 4191243.6,      87.7,     213.0,       6.1);
     ( 565525.6, 4191243.6,      88.1,     213.0,       6.1);         ( 565535.6, 4191243.6,      88.8,     213.0,       6.1);
     ( 565545.6, 4191243.6,      89.5,     213.0,       6.1);         ( 565555.6, 4191243.6,      90.1,     213.0,       6.1);
     ( 565565.6, 4191243.6,      90.4,     213.0,       6.1);         ( 565575.6, 4191243.6,      90.7,     213.0,       6.1);
     ( 565585.6, 4191243.6,      91.1,     213.0,       6.1);         ( 565595.6, 4191243.6,      91.6,     213.0,       6.1);
     ( 565605.6, 4191243.6,      92.2,     213.0,       6.1);         ( 565025.6, 4191253.6,      71.4,     213.0,       6.1);
     ( 565035.6, 4191253.6,      71.7,     213.0,       6.1);         ( 565045.6, 4191253.6,      72.0,     213.0,       6.1);
     ( 565055.6, 4191253.6,      72.3,     213.0,       6.1);         ( 565065.6, 4191253.6,      72.6,     213.0,       6.1);
     ( 565105.6, 4191253.6,      72.9,     213.0,       6.1);         ( 565115.6, 4191253.6,      72.9,     213.0,       6.1);
     ( 565125.6, 4191253.6,      73.0,     213.0,       6.1);         ( 565135.6, 4191253.6,      73.1,     213.0,       6.1);
     ( 565145.6, 4191253.6,      73.4,     213.0,       6.1);         ( 565155.6, 4191253.6,      73.7,     213.0,       6.1);
     ( 565165.6, 4191253.6,      74.0,     213.0,       6.1);         ( 565175.6, 4191253.6,      74.3,     213.0,       6.1);
     ( 565185.6, 4191253.6,      74.6,     213.0,       6.1);         ( 565215.6, 4191253.6,      75.6,     213.0,       6.1);
     ( 565225.6, 4191253.6,      76.0,     213.0,       6.1);         ( 565235.6, 4191253.6,      76.3,     213.0,       6.1);
     ( 565245.6, 4191253.6,      76.6,     213.0,       6.1);         ( 565255.6, 4191253.6,      77.0,     213.0,       6.1);
     ( 565265.6, 4191253.6,      77.3,     213.0,       6.1);         ( 565275.6, 4191253.6,      77.6,     213.0,       6.1);
     ( 565285.6, 4191253.6,      78.0,     213.0,       6.1);         ( 565295.6, 4191253.6,      78.3,     213.0,       6.1);
     ( 565415.6, 4191253.6,      83.3,     213.0,       6.1);         ( 565425.6, 4191253.6,      83.7,     213.0,       6.1);
     ( 565435.6, 4191253.6,      84.1,     213.0,       6.1);         ( 565535.6, 4191253.6,      88.8,     213.0,       6.1);
     ( 565545.6, 4191253.6,      89.5,     213.0,       6.1);         ( 565555.6, 4191253.6,      90.1,     213.0,       6.1);
     ( 565565.6, 4191253.6,      90.4,     213.0,       6.1);         ( 565575.6, 4191253.6,      90.7,     213.0,       6.1);
     ( 565585.6, 4191253.6,      91.1,     213.0,       6.1);         ( 565595.6, 4191253.6,      91.8,     213.0,       6.1);
     ( 565605.6, 4191253.6,      92.4,     213.0,       6.1);         ( 565025.6, 4191263.6,      71.6,     213.0,       6.1);
     ( 565035.6, 4191263.6,      72.0,     213.0,       6.1);         ( 565045.6, 4191263.6,      72.3,     213.0,       6.1);
     ( 565055.6, 4191263.6,      72.6,     213.0,       6.1);         ( 565065.6, 4191263.6,      73.0,     213.0,       6.1);
     ( 565075.6, 4191263.6,      73.2,     213.0,       6.1);         ( 565085.6, 4191263.6,      73.2,     213.0,       6.1);
     ( 565095.6, 4191263.6,      73.2,     213.0,       6.1);         ( 565105.6, 4191263.6,      73.2,     213.0,       6.1);
     ( 565115.6, 4191263.6,      73.2,     213.0,       6.1);         ( 565125.6, 4191263.6,      73.2,     213.0,       6.1);
     ( 565135.6, 4191263.6,      73.3,     213.0,       6.1);         ( 565145.6, 4191263.6,      73.6,     213.0,       6.1);    ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***        14:10:30
                                                                                                                 PAGE 134

 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                   *** DISCRETE CARTESIAN RECEPTORS ***
                                  (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                              (METERS)
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( 565155.6, 4191263.6,      74.0,     213.0,       6.1);         ( 565165.6, 4191263.6,      74.3,     213.0,       6.1);
( 565175.6, 4191263.6,      74.6,     213.0,       6.1);         ( 565185.6, 4191263.6,      75.0,     213.0,       6.1);
( 565215.6, 4191263.6,      76.0,     213.0,       6.1);         ( 565225.6, 4191263.6,      76.3,     213.0,       6.1);
( 565235.6, 4191263.6,      76.6,     213.0,       6.1);         ( 565245.6, 4191263.6,      77.0,     213.0,       6.1);
( 565255.6, 4191263.6,      77.3,     213.0,       6.1);         ( 565265.6, 4191263.6,      77.5,     213.0,       6.1);
( 565285.6, 4191263.6,      78.1,     213.0,       6.1);         ( 565295.6, 4191263.6,      78.4,     213.0,       6.1);
( 565415.6, 4191263.6,      83.5,     213.0,       6.1);         ( 565425.6, 4191263.6,      83.9,     213.0,       6.1);
( 565435.6, 4191263.6,      84.4,     213.0,       6.1);         ( 565445.6, 4191263.6,      85.0,     213.0,       6.1);
( 565575.6, 4191263.6,      90.9,     213.0,       6.1);         ( 565585.6, 4191263.6,      91.4,     213.0,       6.1);
( 565595.6, 4191263.6,      92.0,     213.0,       6.1);         ( 565065.6, 4191273.6,      73.3,     213.0,       6.1);
( 565075.6, 4191273.6,      73.6,     213.0,       6.1);         ( 565085.6, 4191273.6,      73.6,     213.0,       6.1);
( 565095.6, 4191273.6,      73.6,     213.0,       6.1);         ( 565105.6, 4191273.6,      73.6,     213.0,       6.1);
( 565115.6, 4191273.6,      73.6,     213.0,       6.1);         ( 565125.6, 4191273.6,      73.6,     213.0,       6.1);
( 565135.6, 4191273.6,      73.6,     213.0,       6.1);         ( 565145.6, 4191273.6,      74.0,     213.0,       6.1);
( 565155.6, 4191273.6,      74.3,     213.0,       6.1);         ( 565165.6, 4191273.6,      74.6,     213.0,       6.1);
( 565175.6, 4191273.6,      75.0,     213.0,       6.1);         ( 565185.6, 4191273.6,      75.3,     213.0,       6.1);
( 565205.6, 4191273.6,      76.0,     213.0,       6.1);         ( 565215.6, 4191273.6,      76.3,     213.0,       6.1);
( 565225.6, 4191273.6,      76.6,     213.0,       6.1);         ( 565235.6, 4191273.6,      77.0,     213.0,       6.1);
( 565245.6, 4191273.6,      77.3,     213.0,       6.1);         ( 565255.6, 4191273.6,      77.6,     213.0,       6.1);
( 565265.6, 4191273.6,      77.8,     213.0,       6.1);         ( 565285.6, 4191273.6,      78.1,     213.0,       6.1);
( 565415.6, 4191273.6,      83.6,     213.0,       6.1);         ( 565425.6, 4191273.6,      84.2,     213.0,       6.1);
( 565435.6, 4191273.6,      84.7,     213.0,       6.1);         ( 565445.6, 4191273.6,      85.1,     213.0,       6.1);
( 565005.6, 4191283.6,      71.6,     213.0,       6.1);         ( 565015.6, 4191283.6,      72.0,     213.0,       6.1);
( 565115.6, 4191283.6,      73.9,     213.0,       6.1);         ( 565125.6, 4191283.6,      73.9,     213.0,       6.1);
( 565135.6, 4191283.6,      74.0,     213.0,       6.1);         ( 565145.6, 4191283.6,      74.3,     213.0,       6.1);
( 565155.6, 4191283.6,      74.6,     213.0,       6.1);         ( 565165.6, 4191283.6,      75.0,     213.0,       6.1);
( 565175.6, 4191283.6,      75.3,     213.0,       6.1);         ( 565185.6, 4191283.6,      75.6,     213.0,       6.1);
( 565205.6, 4191283.6,      76.3,     213.0,       6.1);         ( 565215.6, 4191283.6,      76.6,     213.0,       6.1);
( 565225.6, 4191283.6,      77.0,     213.0,       6.1);         ( 565235.6, 4191283.6,      77.3,     213.0,       6.1);
( 565245.6, 4191283.6,      77.6,     213.0,       6.1);         ( 565255.6, 4191283.6,      77.9,     213.0,       6.1);
( 565265.6, 4191283.6,      77.9,     213.0,       6.1);         ( 565285.6, 4191283.6,      78.1,     213.0,       6.1);
( 565295.6, 4191283.6,      78.4,     213.0,       6.1);         ( 565305.6, 4191283.6,      78.7,     213.0,       6.1);
( 565315.6, 4191283.6,      79.1,     213.0,       6.1);         ( 565005.6, 4191293.6,      71.8,     213.0,       6.1);
( 565015.6, 4191293.6,      72.1,     213.0,       6.1);         ( 565145.6, 4191293.6,      74.6,     213.0,       6.1);
( 565155.6, 4191293.6,      75.0,     213.0,       6.1);         ( 565165.6, 4191293.6,      75.3,     213.0,       6.1);
( 565175.6, 4191293.6,      75.5,     213.0,       6.1);         ( 565185.6, 4191293.6,      75.8,     213.0,       6.1);
( 565205.6, 4191293.6,      76.4,     213.0,       6.1);         ( 565215.6, 4191293.6,      76.7,     213.0,       6.1);
( 565225.6, 4191293.6,      77.1,     213.0,       6.1);         ( 565235.6, 4191293.6,      77.4,     213.0,       6.1);
( 565245.6, 4191293.6,      77.7,     213.0,       6.1);         ( 565255.6, 4191293.6,      78.0,     213.0,       6.1);
( 565265.6, 4191293.6,      78.1,     213.0,       6.1);         ( 565285.6, 4191293.6,      78.3,     213.0,       6.1);
( 565295.6, 4191293.6,      78.6,     213.0,       6.1);         ( 565305.6, 4191293.6,      79.0,     213.0,       6.1);
( 565315.6, 4191293.6,      79.4,     213.0,       6.1);         ( 565005.6, 4191303.6,      71.9,     213.0,       6.1);
( 565015.6, 4191303.6,      72.1,     213.0,       6.1);         ( 565085.6, 4191303.6,      74.2,     213.0,       6.1);
( 565095.6, 4191303.6,      74.4,     213.0,       6.1);         ( 565105.6, 4191303.6,      74.6,     213.0,       6.1);
( 565115.6, 4191303.6,      74.6,     213.0,       6.1);         ( 565205.6, 4191303.6,      76.4,     213.0,       6.1);
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                     PAGE 135
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

    ( 565215.6, 4191303.6,      76.7,     213.0,       6.1);         ( 565225.6, 4191303.6,      77.1,     213.0,       6.1);
    ( 565235.6, 4191303.6,      77.4,     213.0,       6.1);         ( 565245.6, 4191303.6,      77.7,     213.0,       6.1);
    ( 565255.6, 4191303.6,      78.0,     213.0,       6.1);         ( 565265.6, 4191303.6,      78.2,     213.0,       6.1);
    ( 565275.6, 4191303.6,      78.4,     213.0,       6.1);         ( 565285.6, 4191303.6,      78.6,     213.0,       6.1);
    ( 565295.6, 4191303.6,      79.0,     213.0,       6.1);         ( 565305.6, 4191303.6,      79.3,     213.0,       6.1);
    ( 565315.6, 4191303.6,      79.7,     213.0,       6.1);         ( 565005.6, 4191313.6,      72.0,     213.0,       6.1);
    ( 565015.6, 4191313.6,      72.1,     213.0,       6.1);         ( 565085.6, 4191313.6,      74.4,     213.0,       6.1);
    ( 565095.6, 4191313.6,      74.7,     213.0,       6.1);         ( 565105.6, 4191313.6,      74.9,     213.0,       6.1);
    ( 565115.6, 4191313.6,      74.9,     213.0,       6.1);         ( 565275.6, 4191313.6,      78.7,     213.0,       6.1);
    ( 565285.6, 4191313.6,      79.0,     213.0,       6.1);         ( 565295.6, 4191313.6,      79.3,     213.0,       6.1);
    ( 565305.6, 4191313.6,      79.6,     213.0,       6.1);         ( 565315.6, 4191313.6,      80.0,     213.0,       6.1);
    ( 565005.6, 4191323.6,      72.2,     213.0,       6.1);         ( 565235.6, 4191333.6,      78.0,     213.0,       6.1);
    ( 565245.6, 4191333.6,      78.3,     213.0,       6.1);         ( 565255.6, 4191333.6,      78.6,     213.0,       6.1);
    ( 565265.6, 4191333.6,      78.8,     213.0,       6.1);         ( 565275.6, 4191333.6,      78.9,     213.0,       6.1);
    ( 565285.6, 4191333.6,      79.1,     213.0,       6.1);         ( 565295.6, 4191333.6,      79.4,     213.0,       6.1);
    ( 565305.6, 4191333.6,      79.7,     213.0,       6.1);         ( 564995.6, 4191343.6,      72.9,     213.0,       6.1);
    ( 565005.6, 4191343.6,      72.9,     213.0,       6.1);         ( 565235.6, 4191343.6,      78.3,     213.0,       6.1);
    ( 565245.6, 4191343.6,      78.6,     213.0,       6.1);         ( 565255.6, 4191343.6,      78.9,     213.0,       6.1);
    ( 565265.6, 4191343.6,      78.9,     213.0,       6.1);         ( 565275.6, 4191343.6,      79.0,     213.0,       6.1);
    ( 565285.6, 4191343.6,      79.1,     213.0,       6.1);         ( 565295.6, 4191343.6,      79.4,     213.0,       6.1);
    ( 565305.6, 4191343.6,      79.7,     213.0,       6.1);         ( 565315.6, 4191343.6,      80.1,     213.0,       6.1);
    ( 565325.6, 4191343.6,      80.4,     213.0,       6.1);         ( 565335.6, 4191343.6,      80.7,     213.0,       6.1);
    ( 565345.6, 4191343.6,      81.1,     213.0,       6.1);         ( 564995.6, 4191353.6,      73.2,     213.0,       6.1);
    ( 565005.6, 4191353.6,      73.2,     213.0,       6.1);         ( 565015.6, 4191353.6,      73.3,     213.0,       6.1);
    ( 565025.6, 4191353.6,      73.6,     213.0,       6.1);         ( 565035.6, 4191353.6,      74.0,     213.0,       6.1);
    ( 565235.6, 4191353.6,      78.5,     213.0,       6.1);         ( 565245.6, 4191353.6,      78.8,     213.0,       6.1);
    ( 565255.6, 4191353.6,      79.0,     213.0,       6.1);         ( 565265.6, 4191353.6,      79.1,     213.0,       6.1);
    ( 565275.6, 4191353.6,      79.2,     213.0,       6.1);         ( 565285.6, 4191353.6,      79.3,     213.0,       6.1);
    ( 565295.6, 4191353.6,      79.6,     213.0,       6.1);         ( 565305.6, 4191353.6,      80.0,     213.0,       6.1);
    ( 565315.6, 4191353.6,      80.3,     213.0,       6.1);         ( 565325.6, 4191353.6,      80.6,     213.0,       6.1);
    ( 565335.6, 4191353.6,      81.0,     213.0,       6.1);         ( 565345.6, 4191353.6,      81.4,     213.0,       6.1);
    ( 565355.6, 4191353.6,      82.0,     213.0,       6.1);         ( 565365.6, 4191353.6,      82.5,     213.0,       6.1);
    ( 565375.6, 4191353.6,      83.1,     213.0,       6.1);         ( 565005.6, 4191363.6,      73.6,     213.0,       6.1);
    ( 565015.6, 4191363.6,      73.6,     213.0,       6.1);         ( 565025.6, 4191363.6,      74.0,     213.0,       6.1);
    ( 565035.6, 4191363.6,      74.3,     213.0,       6.1);         ( 565075.6, 4191363.6,      75.0,     213.0,       6.1);
    ( 565085.6, 4191363.6,      75.2,     213.0,       6.1);         ( 565095.6, 4191363.6,      75.4,     213.0,       6.1);
    ( 565105.6, 4191363.6,      75.6,     213.0,       6.1);         ( 565195.6, 4191363.6,      77.6,     213.0,       6.1);
    ( 565205.6, 4191363.6,      78.0,     213.0,       6.1);         ( 565215.6, 4191363.6,      78.3,     213.0,       6.1);
    ( 565225.6, 4191363.6,      78.6,     213.0,       6.1);         ( 565235.6, 4191363.6,      78.8,     213.0,       6.1);
    ( 565245.6, 4191363.6,      78.9,     213.0,       6.1);         ( 565255.6, 4191363.6,      79.0,     213.0,       6.1);
    ( 565265.6, 4191363.6,      79.2,     213.0,       6.1);         ( 565275.6, 4191363.6,      79.4,     213.0,       6.1);
    ( 565285.6, 4191363.6,      79.6,     213.0,       6.1);         ( 565295.6, 4191363.6,      80.0,     213.0,       6.1);
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     ( 565305.6, 4191363.6,      80.3,     213.0,       6.1);         ( 565315.6, 4191363.6,      80.6,     213.0,       6.1);
     ( 565325.6, 4191363.6,      81.0,     213.0,       6.1);         ( 565335.6, 4191363.6,      81.3,     213.0,       6.1);
     ( 565345.6, 4191363.6,      81.7,     213.0,       6.1);         ( 565355.6, 4191363.6,      82.1,     213.0,       6.1);   ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                          ***        14:10:30
                                                                                                                            PAGE 136
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                   (METERS)

     ( 565365.6, 4191363.6,      82.6,     213.0,       6.1);         ( 565375.6, 4191363.6,      83.1,     213.0,       6.1);
     ( 565405.6, 4191363.6,      84.6,     213.0,       6.1);         ( 565415.6, 4191363.6,      85.0,     213.0,       6.1);
     ( 565425.6, 4191363.6,      85.3,     213.0,       6.1);         ( 565075.6, 4191373.6,      75.1,     213.0,       6.1);
     ( 565085.6, 4191373.6,      75.4,     213.0,       6.1);         ( 565095.6, 4191373.6,      75.7,     213.0,       6.1);
     ( 565105.6, 4191373.6,      76.0,     213.0,       6.1);         ( 565195.6, 4191373.6,      78.0,     213.0,       6.1);
     ( 565205.6, 4191373.6,      78.3,     213.0,       6.1);         ( 565215.6, 4191373.6,      78.6,     213.0,       6.1);
     ( 565225.6, 4191373.6,      78.9,     213.0,       6.1);         ( 565235.6, 4191373.6,      78.9,     213.0,       6.1);
     ( 565245.6, 4191373.6,      79.0,     213.0,       6.1);         ( 565255.6, 4191373.6,      79.1,     213.0,       6.1);
     ( 565265.6, 4191373.6,      79.4,     213.0,       6.1);         ( 565275.6, 4191373.6,      79.7,     213.0,       6.1);
     ( 565285.6, 4191373.6,      80.0,     213.0,       6.1);         ( 565295.6, 4191373.6,      80.3,     213.0,       6.1);
     ( 565305.6, 4191373.6,      80.6,     213.0,       6.1);         ( 565315.6, 4191373.6,      81.0,     213.0,       6.1);
     ( 565325.6, 4191373.6,      81.3,     213.0,       6.1);         ( 565335.6, 4191373.6,      81.6,     213.0,       6.1);
     ( 565345.6, 4191373.6,      82.0,     213.0,       6.1);         ( 565355.6, 4191373.6,      82.3,     213.0,       6.1);
     ( 565365.6, 4191373.6,      82.7,     213.0,       6.1);         ( 565375.6, 4191373.6,      83.1,     213.0,       6.1);
     ( 565405.6, 4191373.6,      85.0,     213.0,       6.1);         ( 565415.6, 4191373.6,      85.3,     213.0,       6.1);
     ( 565425.6, 4191373.6,      85.6,     213.0,       6.1);         ( 565465.6, 4191373.6,      87.1,     213.0,       6.1);
     ( 565475.6, 4191373.6,      87.4,     213.0,       6.1);         ( 565485.6, 4191373.6,      87.7,     213.0,       6.1);
     ( 565495.6, 4191373.6,      88.1,     213.0,       6.1);         ( 565505.6, 4191373.6,      88.8,     213.0,       6.1);
     ( 565515.6, 4191373.6,      89.4,     213.0,       6.1);         ( 565525.6, 4191373.6,      90.0,     213.0,       6.1);
     ( 565195.6, 4191383.6,      78.3,     213.0,       6.1);         ( 565205.6, 4191383.6,      78.6,     213.0,       6.1);
     ( 565215.6, 4191383.6,      79.0,     213.0,       6.1);         ( 565225.6, 4191383.6,      79.3,     213.0,       6.1);
     ( 565235.6, 4191383.6,      79.3,     213.0,       6.1);         ( 565245.6, 4191383.6,      79.4,     213.0,       6.1);
     ( 565255.6, 4191383.6,      79.5,     213.0,       6.1);         ( 565265.6, 4191383.6,      79.8,     213.0,       6.1);
     ( 565275.6, 4191383.6,      80.0,     213.0,       6.1);         ( 565285.6, 4191383.6,      80.3,     213.0,       6.1);
     ( 565295.6, 4191383.6,      80.6,     213.0,       6.1);         ( 565305.6, 4191383.6,      81.0,     213.0,       6.1);
     ( 565315.6, 4191383.6,      81.3,     213.0,       6.1);         ( 565325.6, 4191383.6,      81.6,     213.0,       6.1);
     ( 565335.6, 4191383.6,      82.0,     213.0,       6.1);         ( 565345.6, 4191383.6,      82.3,     213.0,       6.1);
     ( 565355.6, 4191383.6,      82.6,     213.0,       6.1);         ( 565365.6, 4191383.6,      83.0,     213.0,       6.1);
     ( 565395.6, 4191383.6,      84.7,     213.0,       6.1);         ( 565405.6, 4191383.6,      85.3,     213.0,       6.1);
     ( 565415.6, 4191383.6,      85.6,     213.0,       6.1);         ( 565425.6, 4191383.6,      86.0,     213.0,       6.1);
     ( 565465.6, 4191383.6,      87.3,     213.0,       6.1);         ( 565475.6, 4191383.6,      87.6,     213.0,       6.1);
     ( 565485.6, 4191383.6,      88.0,     213.0,       6.1);         ( 565495.6, 4191383.6,      88.4,     213.0,       6.1);
     ( 565505.6, 4191383.6,      89.0,     213.0,       6.1);         ( 565515.6, 4191383.6,      89.5,     213.0,       6.1);
     ( 565525.6, 4191383.6,      90.1,     213.0,       6.1);         ( 565535.6, 4191383.6,      90.4,     213.0,       6.1);
     ( 565545.6, 4191383.6,      90.7,     213.0,       6.1);         ( 565555.6, 4191383.6,      91.1,     213.0,       6.1);
     ( 565565.6, 4191383.6,      91.5,     213.0,       6.1);         ( 565575.6, 4191383.6,      91.9,     213.0,       6.1);
     ( 565195.6, 4191393.6,      78.6,     213.0,       6.1);         ( 565205.6, 4191393.6,      79.0,     213.0,       6.1);
     ( 565215.6, 4191393.6,      79.3,     213.0,       6.1);         ( 565225.6, 4191393.6,      79.6,     213.0,       6.1);
     ( 565235.6, 4191393.6,      79.8,     213.0,       6.1);         ( 565245.6, 4191393.6,      80.0,     213.0,       6.1);
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     ( 565255.6, 4191393.6,      80.2,     213.0,       6.1);         ( 565265.6, 4191393.6,      80.3,     213.0,       6.1);
     ( 565275.6, 4191393.6,      80.5,     213.0,       6.1);         ( 565285.6, 4191393.6,      80.6,     213.0,       6.1);
     ( 565295.6, 4191393.6,      81.0,     213.0,       6.1);         ( 565305.6, 4191393.6,      81.3,     213.0,       6.1);
     ( 565315.6, 4191393.6,      81.6,     213.0,       6.1);         ( 565325.6, 4191393.6,      82.0,     213.0,       6.1);
     ( 565335.6, 4191393.6,      82.3,     213.0,       6.1);         ( 565345.6, 4191393.6,      82.6,     213.0,       6.1);
     ( 565355.6, 4191393.6,      83.0,     213.0,       6.1);         ( 565365.6, 4191393.6,      83.3,     213.0,       6.1);   ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***        14:10:30
                                                                                                                 PAGE 137
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                     (METERS)

     ( 565395.6, 4191393.6,      85.0,     213.0,       6.1);         ( 565405.6, 4191393.6,      85.6,     213.0,       6.1);
     ( 565415.6, 4191393.6,      86.0,     213.0,       6.1);         ( 565425.6, 4191393.6,      86.3,     213.0,       6.1);
     ( 565465.6, 4191393.6,      87.6,     213.0,       6.1);         ( 565475.6, 4191393.6,      88.0,     213.0,       6.1);
     ( 565485.6, 4191393.6,      88.3,     213.0,       6.1);         ( 565495.6, 4191393.6,      88.7,     213.0,       6.1);
     ( 565505.6, 4191393.6,      89.1,     213.0,       6.1);         ( 565515.6, 4191393.6,      89.6,     213.0,       6.1);
     ( 565525.6, 4191393.6,      90.1,     213.0,       6.1);         ( 565535.6, 4191393.6,      90.4,     213.0,       6.1);
     ( 565545.6, 4191393.6,      90.7,     213.0,       6.1);         ( 565555.6, 4191393.6,      91.1,     213.0,       6.1);
     ( 565565.6, 4191393.6,      91.6,     213.0,       6.1);         ( 565575.6, 4191393.6,      92.2,     213.0,       6.1);
     ( 565225.6, 4191403.6,      80.0,     213.0,       6.1);         ( 565235.6, 4191403.6,      80.3,     213.0,       6.1);
     ( 565245.6, 4191403.6,      80.6,     213.0,       6.1);         ( 565255.6, 4191403.6,      80.8,     213.0,       6.1);
     ( 565265.6, 4191403.6,      80.8,     213.0,       6.1);         ( 565275.6, 4191403.6,      80.9,     213.0,       6.1);
     ( 565285.6, 4191403.6,      81.0,     213.0,       6.1);         ( 565295.6, 4191403.6,      81.3,     213.0,       6.1);
     ( 565305.6, 4191403.6,      81.6,     213.0,       6.1);         ( 565315.6, 4191403.6,      82.0,     213.0,       6.1);
     ( 565325.6, 4191403.6,      82.3,     213.0,       6.1);         ( 565335.6, 4191403.6,      82.6,     213.0,       6.1);
     ( 565345.6, 4191403.6,      83.0,     213.0,       6.1);         ( 565355.6, 4191403.6,      83.3,     213.0,       6.1);
     ( 565365.6, 4191403.6,      83.6,     213.0,       6.1);         ( 565395.6, 4191403.6,      85.4,     213.0,       6.1);
     ( 565405.6, 4191403.6,      86.0,     213.0,       6.1);         ( 565415.6, 4191403.6,      86.3,     213.0,       6.1);
     ( 565425.6, 4191403.6,      86.6,     213.0,       6.1);         ( 565435.6, 4191403.6,      87.0,     213.0,       6.1);
     ( 565465.6, 4191403.6,      88.0,     213.0,       6.1);         ( 565565.6, 4191403.6,      91.8,     213.0,       6.1);
     ( 565575.6, 4191403.6,      92.4,     213.0,       6.1);         ( 565285.6, 4191413.6,      81.3,     213.0,       6.1);
     ( 565295.6, 4191413.6,      81.6,     213.0,       6.1);         ( 565305.6, 4191413.6,      82.0,     213.0,       6.1);
     ( 565315.6, 4191413.6,      82.3,     213.0,       6.1);         ( 565325.6, 4191413.6,      82.6,     213.0,       6.1);
     ( 565335.6, 4191413.6,      83.0,     213.0,       6.1);         ( 565345.6, 4191413.6,      83.3,     213.0,       6.1);
     ( 565355.6, 4191413.6,      83.7,     213.0,       6.1);         ( 565365.6, 4191413.6,      84.2,     213.0,       6.1);
     ( 565395.6, 4191413.6,      85.6,     213.0,       6.1);         ( 565405.6, 4191413.6,      86.1,     213.0,       6.1);
     ( 565415.6, 4191413.6,      86.4,     213.0,       6.1);         ( 565425.6, 4191413.6,      86.7,     213.0,       6.1);
     ( 565435.6, 4191413.6,      87.1,     213.0,       6.1);         ( 565565.6, 4191413.6,      92.0,     213.0,       6.1);
     ( 565575.6, 4191413.6,      92.5,     213.0,       6.1);         ( 565355.6, 4191423.6,      84.2,     213.0,       6.1);
     ( 565365.6, 4191423.6,      84.7,     213.0,       6.1);         ( 565395.6, 4191423.6,      85.8,     213.0,       6.1);
     ( 565405.6, 4191423.6,      86.1,     213.0,       6.1);         ( 565415.6, 4191423.6,      86.4,     213.0,       6.1);
     ( 565425.6, 4191423.6,      86.7,     213.0,       6.1);         ( 565435.6, 4191423.6,      87.1,     213.0,       6.1);
     ( 565505.6, 4191423.6,      89.4,     213.0,       6.1);         ( 565515.6, 4191423.6,      89.7,     213.0,       6.1);
     ( 565525.6, 4191423.6,      90.1,     213.0,       6.1);         ( 565535.6, 4191423.6,      90.6,     213.0,       6.1);
     ( 565545.6, 4191423.6,      91.2,     213.0,       6.1);         ( 565555.6, 4191423.6,      91.7,     213.0,       6.1);
     ( 565565.6, 4191423.6,      92.1,     213.0,       6.1);         ( 565575.6, 4191423.6,      92.6,     213.0,       6.1);
     ( 565395.6, 4191433.6,      86.0,     213.0,       6.1);         ( 565405.6, 4191433.6,      86.1,     213.0,       6.1);
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    ( 565415.6, 4191433.6,      86.4,     213.0,       6.1);         ( 565425.6, 4191433.6,      86.7,     213.0,       6.1);
    ( 565435.6, 4191433.6,      87.1,     213.0,       6.1);         ( 565455.6, 4191433.6,      88.4,     213.0,       6.1);
    ( 565465.6, 4191433.6,      88.9,     213.0,       6.1);         ( 565475.6, 4191433.6,      88.9,     213.0,       6.1);
    ( 565485.6, 4191433.6,      89.0,     213.0,       6.1);         ( 565495.6, 4191433.6,      89.1,     213.0,       6.1);
    ( 565505.6, 4191433.6,      89.4,     213.0,       6.1);         ( 565515.6, 4191433.6,      89.7,     213.0,       6.1);
    ( 565525.6, 4191433.6,      90.1,     213.0,       6.1);         ( 565535.6, 4191433.6,      90.8,     213.0,       6.1);
    ( 565545.6, 4191433.6,      91.4,     213.0,       6.1);         ( 565555.6, 4191433.6,      92.0,     213.0,       6.1);
    ( 565565.6, 4191433.6,      92.3,     213.0,       6.1);         ( 565575.6, 4191433.6,      92.7,     213.0,       6.1);
    ( 565455.6, 4191443.6,      88.5,     213.0,       6.1);         ( 565465.6, 4191443.6,      89.0,     213.0,       6.1); *** AERMOD
- VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***       11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                  ***        14:10:30
                                                                                                                   PAGE 138
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

    ( 565475.6, 4191443.6,      89.1,     213.0,       6.1);         ( 565485.6, 4191443.6,      89.2,     213.0,       6.1);
    ( 565495.6, 4191443.6,      89.3,     213.0,       6.1);         ( 565505.6, 4191443.6,      89.6,     213.0,       6.1);
    ( 565515.6, 4191443.6,      90.0,     213.0,       6.1);         ( 565525.6, 4191443.6,      90.4,     213.0,       6.1);
    ( 565535.6, 4191443.6,      91.0,     213.0,       6.1);         ( 565545.6, 4191443.6,      91.5,     213.0,       6.1);
    ( 565555.6, 4191443.6,      92.1,     213.0,       6.1);         ( 565565.6, 4191443.6,      92.5,     213.0,       6.1);
    ( 565575.6, 4191443.6,      92.9,     213.0,       6.1);         ( 565515.6, 4191453.6,      90.3,     213.0,       6.1);
    ( 565525.6, 4191453.6,      90.7,     213.0,       6.1);         ( 565535.6, 4191453.6,      91.1,     213.0,       6.1);
    ( 565545.6, 4191453.6,      91.6,     213.0,       6.1);         ( 565555.6, 4191453.6,      92.1,     213.0,       6.1);
    ( 565565.6, 4191453.6,      92.6,     213.0,       6.1);         ( 565575.6, 4191453.6,      93.2,     213.0,       6.1);
    ( 565065.6, 4190893.6,      63.7,      63.7,       9.1);         ( 565075.6, 4190893.6,      64.1,      64.1,       9.1);
    ( 565085.6, 4190893.6,      64.4,      64.4,       9.1);         ( 565095.6, 4190893.6,      64.7,      64.7,       9.1);
    ( 565105.6, 4190893.6,      65.1,      65.1,       9.1);         ( 565065.6, 4190903.6,      64.0,      64.0,       9.1);
    ( 565075.6, 4190903.6,      64.3,      64.3,       9.1);         ( 565085.6, 4190903.6,      64.6,      64.6,       9.1);
    ( 565095.6, 4190903.6,      65.0,      65.0,       9.1);         ( 565105.6, 4190903.6,      65.3,      65.3,       9.1);
    ( 565115.6, 4190903.6,      65.6,      65.6,       9.1);         ( 565145.6, 4190903.6,      66.6,      66.6,       9.1);
    ( 565155.6, 4190903.6,      67.0,      67.0,       9.1);         ( 565065.6, 4190913.6,      64.3,      64.3,       9.1);
    ( 565075.6, 4190913.6,      64.6,      64.6,       9.1);         ( 565085.6, 4190913.6,      65.0,      65.0,       9.1);
    ( 565095.6, 4190913.6,      65.3,      65.3,       9.1);         ( 565105.6, 4190913.6,      65.6,      65.6,       9.1);
    ( 565115.6, 4190913.6,      66.0,      66.0,       9.1);         ( 565145.6, 4190913.6,      67.0,     213.0,       9.1);
    ( 565155.6, 4190913.6,      67.3,     213.0,       9.1);         ( 565165.6, 4190913.6,      67.6,     213.0,       9.1);
    ( 565065.6, 4190923.6,      64.6,      64.6,       9.1);         ( 565075.6, 4190923.6,      65.0,      65.0,       9.1);
    ( 565085.6, 4190923.6,      65.3,      65.3,       9.1);         ( 565095.6, 4190923.6,      65.6,     213.0,       9.1);
    ( 565105.6, 4190923.6,      66.0,     213.0,       9.1);         ( 565115.6, 4190923.6,      66.3,     213.0,       9.1);
    ( 565145.6, 4190923.6,      67.3,     213.0,       9.1);         ( 565155.6, 4190923.6,      67.6,     213.0,       9.1);
    ( 565165.6, 4190923.6,      67.9,     213.0,       9.1);         ( 565225.6, 4190923.6,      69.0,     213.0,       9.1);
    ( 565235.6, 4190923.6,      69.3,     213.0,       9.1);         ( 565055.6, 4190933.6,      64.4,     213.0,       9.1);
    ( 565065.6, 4190933.6,      64.7,     213.0,       9.1);         ( 565075.6, 4190933.6,      65.1,     213.0,       9.1);
    ( 565085.6, 4190933.6,      65.4,     213.0,       9.1);         ( 565095.6, 4190933.6,      65.7,     213.0,       9.1);
    ( 565105.6, 4190933.6,      66.1,     213.0,       9.1);         ( 565115.6, 4190933.6,      66.4,     213.0,       9.1);
    ( 565145.6, 4190933.6,      67.4,     213.0,       9.1);         ( 565155.6, 4190933.6,      67.7,     213.0,       9.1);
    ( 565225.6, 4190933.6,      69.3,     213.0,       9.1);         ( 565235.6, 4190933.6,      69.6,     213.0,       9.1);
    ( 565305.6, 4190933.6,      72.7,     213.0,       9.1);         ( 565315.6, 4190933.6,      73.0,     213.0,       9.1);
    ( 565325.6, 4190933.6,      73.1,     213.0,       9.1);         ( 565335.6, 4190933.6,      73.2,     213.0,       9.1);
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    ( 565345.6, 4190933.6,      73.4,     213.0,       9.1);         ( 565355.6, 4190933.6,      74.0,     213.0,       9.1);
    ( 565365.6, 4190933.6,      74.5,     213.0,       9.1);         ( 565055.6, 4190943.6,      64.4,     213.0,       9.1);
    ( 565065.6, 4190943.6,      64.7,     213.0,       9.1);         ( 565075.6, 4190943.6,      65.1,     213.0,       9.1);
    ( 565085.6, 4190943.6,      65.4,     213.0,       9.1);         ( 565095.6, 4190943.6,      65.7,     213.0,       9.1);
    ( 565105.6, 4190943.6,      66.1,     213.0,       9.1);         ( 565115.6, 4190943.6,      66.4,     213.0,       9.1);
    ( 565145.6, 4190943.6,      67.4,     213.0,       9.1);         ( 565155.6, 4190943.6,      67.7,     213.0,       9.1);
    ( 565265.6, 4190943.6,      71.1,     213.0,       9.1);         ( 565275.6, 4190943.6,      71.6,     213.0,       9.1);
    ( 565285.6, 4190943.6,      72.1,     213.0,       9.1);         ( 565305.6, 4190943.6,      72.7,     213.0,       9.1);
    ( 565315.6, 4190943.6,      73.0,     213.0,       9.1);         ( 565325.6, 4190943.6,      73.2,     213.0,       9.1);
    ( 565335.6, 4190943.6,      73.4,     213.0,       9.1);         ( 565345.6, 4190943.6,      73.7,     213.0,       9.1);
    ( 565355.6, 4190943.6,      74.1,     213.0,       9.1);         ( 565365.6, 4190943.6,      74.6,     213.0,       9.1);
    ( 565375.6, 4190943.6,      75.1,     213.0,       9.1);         ( 565385.6, 4190943.6,      75.6,     213.0,       9.1);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                ***       11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                         ***       14:10:30
                                                                                                                         PAGE 139
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

    ( 565395.6, 4190943.6,      76.2,     213.0,       9.1);         ( 565425.6, 4190943.6,      78.0,     213.0,       9.1);
    ( 565435.6, 4190943.6,      78.6,     213.0,       9.1);         ( 565445.6, 4190943.6,      79.0,     213.0,       9.1);
    ( 565455.6, 4190943.6,      79.3,     213.0,       9.1);         ( 565465.6, 4190943.6,      79.7,     213.0,       9.1);
    ( 565475.6, 4190943.6,      80.1,     213.0,       9.1);         ( 565485.6, 4190943.6,      80.6,     213.0,       9.1);
    ( 565495.6, 4190943.6,      81.1,     213.0,       9.1);         ( 565505.6, 4190943.6,      81.4,     213.0,       9.1);
    ( 565515.6, 4190943.6,      81.7,     213.0,       9.1);         ( 565055.6, 4190953.6,      64.4,     213.0,       9.1);
    ( 565065.6, 4190953.6,      64.7,     213.0,       9.1);         ( 565075.6, 4190953.6,      65.1,     213.0,       9.1);
    ( 565085.6, 4190953.6,      65.4,     213.0,       9.1);         ( 565095.6, 4190953.6,      65.7,     213.0,       9.1);
    ( 565105.6, 4190953.6,      66.1,     213.0,       9.1);         ( 565115.6, 4190953.6,      66.4,     213.0,       9.1);
    ( 565145.6, 4190953.6,      67.4,     213.0,       9.1);         ( 565155.6, 4190953.6,      67.7,     213.0,       9.1);
    ( 565265.6, 4190953.6,      71.3,     213.0,       9.1);         ( 565275.6, 4190953.6,      71.7,     213.0,       9.1);
    ( 565285.6, 4190953.6,      72.1,     213.0,       9.1);         ( 565305.6, 4190953.6,      72.7,     213.0,       9.1);
    ( 565315.6, 4190953.6,      73.1,     213.0,       9.1);         ( 565325.6, 4190953.6,      73.4,     213.0,       9.1);
    ( 565335.6, 4190953.6,      73.7,     213.0,       9.1);         ( 565345.6, 4190953.6,      74.0,     213.0,       9.1);
    ( 565355.6, 4190953.6,      74.3,     213.0,       9.1);         ( 565365.6, 4190953.6,      74.7,     213.0,       9.1);
    ( 565375.6, 4190953.6,      75.1,     213.0,       9.1);         ( 565385.6, 4190953.6,      75.8,     213.0,       9.1);
    ( 565395.6, 4190953.6,      76.4,     213.0,       9.1);         ( 565425.6, 4190953.6,      78.4,     213.0,       9.1);
    ( 565435.6, 4190953.6,      79.0,     213.0,       9.1);         ( 565445.6, 4190953.6,      79.3,     213.0,       9.1);
    ( 565455.6, 4190953.6,      79.6,     213.0,       9.1);         ( 565465.6, 4190953.6,      80.0,     213.0,       9.1);
    ( 565475.6, 4190953.6,      80.3,     213.0,       9.1);         ( 565485.6, 4190953.6,      80.7,     213.0,       9.1);
    ( 565495.6, 4190953.6,      81.1,     213.0,       9.1);         ( 565505.6, 4190953.6,      81.4,     213.0,       9.1);
    ( 565515.6, 4190953.6,      81.7,     213.0,       9.1);         ( 565535.6, 4190953.6,      82.4,     213.0,       9.1);
    ( 565545.6, 4190953.6,      82.7,     213.0,       9.1);         ( 565555.6, 4190953.6,      83.1,     213.0,       9.1);
    ( 565565.6, 4190953.6,      83.8,     213.0,       9.1);         ( 565575.6, 4190953.6,      84.4,     213.0,       9.1);
    ( 565585.6, 4190953.6,      85.0,     213.0,       9.1);         ( 565595.6, 4190953.6,      85.3,     213.0,       9.1);
    ( 565605.6, 4190953.6,      85.6,     213.0,       9.1);         ( 565615.6, 4190953.6,      86.0,     213.0,       9.1);
    ( 565625.6, 4190953.6,      86.3,     213.0,       9.1);         ( 565055.6, 4190963.6,      64.5,     213.0,       9.1);
    ( 565065.6, 4190963.6,      64.8,     213.0,       9.1);         ( 565075.6, 4190963.6,      65.1,     213.0,       9.1);
    ( 565085.6, 4190963.6,      65.4,     213.0,       9.1);         ( 565095.6, 4190963.6,      65.7,     213.0,       9.1);
    ( 565105.6, 4190963.6,      66.1,     213.0,       9.1);         ( 565115.6, 4190963.6,      66.4,     213.0,       9.1);
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     ( 565145.6, 4190963.6,      67.4,     213.0,       9.1);         ( 565155.6, 4190963.6,      67.7,     213.0,       9.1);
     ( 565265.6, 4190963.6,      71.6,     213.0,       9.1);         ( 565275.6, 4190963.6,      72.0,     213.0,       9.1);
     ( 565285.6, 4190963.6,      72.3,     213.0,       9.1);         ( 565305.6, 4190963.6,      73.0,     213.0,       9.1);
     ( 565315.6, 4190963.6,      73.3,     213.0,       9.1);         ( 565325.6, 4190963.6,      73.6,     213.0,       9.1);
     ( 565335.6, 4190963.6,      74.0,     213.0,       9.1);         ( 565345.6, 4190963.6,      74.3,     213.0,       9.1);
     ( 565355.6, 4190963.6,      74.6,     213.0,       9.1);         ( 565365.6, 4190963.6,      75.0,     213.0,       9.1);
     ( 565375.6, 4190963.6,      75.4,     213.0,       9.1);         ( 565385.6, 4190963.6,      76.0,     213.0,       9.1);
     ( 565395.6, 4190963.6,      76.7,     213.0,       9.1);         ( 565425.6, 4190963.6,      78.5,     213.0,       9.1);
     ( 565435.6, 4190963.6,      79.1,     213.0,       9.1);         ( 565445.6, 4190963.6,      79.4,     213.0,       9.1);
     ( 565455.6, 4190963.6,      79.7,     213.0,       9.1);         ( 565465.6, 4190963.6,      80.1,     213.0,       9.1);
     ( 565475.6, 4190963.6,      80.4,     213.0,       9.1);         ( 565485.6, 4190963.6,      80.7,     213.0,       9.1);
     ( 565495.6, 4190963.6,      81.1,     213.0,       9.1);         ( 565505.6, 4190963.6,      81.5,     213.0,       9.1);
     ( 565515.6, 4190963.6,      81.9,     213.0,       9.1);         ( 565535.6, 4190963.6,      82.6,     213.0,       9.1);
     ( 565545.6, 4190963.6,      83.0,     213.0,       9.1);         ( 565555.6, 4190963.6,      83.4,     213.0,       9.1);
     ( 565565.6, 4190963.6,      84.0,     213.0,       9.1);         ( 565575.6, 4190963.6,      84.5,     213.0,       9.1);      ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***        14:10:30
                                                                                                                 PAGE 140
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     ( 565585.6, 4190963.6,      85.1,     213.0,       9.1);         ( 565595.6, 4190963.6,      85.5,     213.0,       9.1);
     ( 565605.6, 4190963.6,      85.9,     213.0,       9.1);         ( 565615.6, 4190963.6,      86.3,     213.0,       9.1);
     ( 565625.6, 4190963.6,      86.6,     213.0,       9.1);         ( 565055.6, 4190973.6,      64.8,     213.0,       9.1);
     ( 565065.6, 4190973.6,      64.9,     213.0,       9.1);         ( 565075.6, 4190973.6,      65.1,     213.0,       9.1);
     ( 565085.6, 4190973.6,      65.4,     213.0,       9.1);         ( 565095.6, 4190973.6,      65.7,     213.0,       9.1);
     ( 565105.6, 4190973.6,      66.1,     213.0,       9.1);         ( 565115.6, 4190973.6,      66.4,     213.0,       9.1);
     ( 565145.6, 4190973.6,      67.4,     213.0,       9.1);         ( 565155.6, 4190973.6,      67.7,     213.0,       9.1);
     ( 565265.6, 4190973.6,      72.0,     213.0,       9.1);         ( 565275.6, 4190973.6,      72.3,     213.0,       9.1);
     ( 565305.6, 4190973.6,      73.3,     213.0,       9.1);         ( 565315.6, 4190973.6,      73.6,     213.0,       9.1);
     ( 565325.6, 4190973.6,      74.0,     213.0,       9.1);         ( 565335.6, 4190973.6,      74.3,     213.0,       9.1);
     ( 565345.6, 4190973.6,      74.6,     213.0,       9.1);         ( 565355.6, 4190973.6,      75.0,     213.0,       9.1);
     ( 565365.6, 4190973.6,      75.3,     213.0,       9.1);         ( 565375.6, 4190973.6,      75.7,     213.0,       9.1);
     ( 565385.6, 4190973.6,      76.4,     213.0,       9.1);         ( 565395.6, 4190973.6,      77.0,     213.0,       9.1);
     ( 565425.6, 4190973.6,      78.6,     213.0,       9.1);         ( 565435.6, 4190973.6,      79.1,     213.0,       9.1);
     ( 565445.6, 4190973.6,      79.4,     213.0,       9.1);         ( 565455.6, 4190973.6,      79.7,     213.0,       9.1);
     ( 565465.6, 4190973.6,      80.1,     213.0,       9.1);         ( 565475.6, 4190973.6,      80.4,     213.0,       9.1);
     ( 565485.6, 4190973.6,      80.7,     213.0,       9.1);         ( 565495.6, 4190973.6,      81.1,     213.0,       9.1);
     ( 565505.6, 4190973.6,      81.6,     213.0,       9.1);         ( 565515.6, 4190973.6,      82.2,     213.0,       9.1);
     ( 565535.6, 4190973.6,      83.0,     213.0,       9.1);         ( 565545.6, 4190973.6,      83.3,     213.0,       9.1);
     ( 565555.6, 4190973.6,      83.7,     213.0,       9.1);         ( 565565.6, 4190973.6,      84.1,     213.0,       9.1);
     ( 565575.6, 4190973.6,      84.6,     213.0,       9.1);         ( 565585.6, 4190973.6,      85.1,     213.0,       9.1);
     ( 565595.6, 4190973.6,      85.6,     213.0,       9.1);         ( 565605.6, 4190973.6,      86.2,     213.0,       9.1);
     ( 565615.6, 4190973.6,      86.6,     213.0,       9.1);         ( 565625.6, 4190973.6,      87.0,     213.0,       9.1);
     ( 565095.6, 4190983.6,      65.7,     213.0,       9.1);         ( 565105.6, 4190983.6,      66.1,     213.0,       9.1);
     ( 565115.6, 4190983.6,      66.4,     213.0,       9.1);         ( 565145.6, 4190983.6,      67.4,     213.0,       9.1);
     ( 565155.6, 4190983.6,      67.7,     213.0,       9.1);         ( 565265.6, 4190983.6,      72.3,     213.0,       9.1);
     ( 565275.6, 4190983.6,      72.6,     213.0,       9.1);         ( 565305.6, 4190983.6,      73.6,     213.0,       9.1);
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     ( 565315.6, 4190983.6,      74.0,     213.0,       9.1);         ( 565325.6, 4190983.6,      74.3,     213.0,       9.1);
     ( 565335.6, 4190983.6,      74.6,     213.0,       9.1);         ( 565345.6, 4190983.6,      75.0,     213.0,       9.1);
     ( 565355.6, 4190983.6,      75.3,     213.0,       9.1);         ( 565365.6, 4190983.6,      75.6,     213.0,       9.1);
     ( 565375.6, 4190983.6,      76.0,     213.0,       9.1);         ( 565385.6, 4190983.6,      76.7,     213.0,       9.1);
     ( 565395.6, 4190983.6,      77.4,     213.0,       9.1);         ( 565425.6, 4190983.6,      78.7,     213.0,       9.1);
     ( 565435.6, 4190983.6,      79.1,     213.0,       9.1);         ( 565445.6, 4190983.6,      79.4,     213.0,       9.1);
     ( 565455.6, 4190983.6,      79.7,     213.0,       9.1);         ( 565465.6, 4190983.6,      80.1,     213.0,       9.1);
     ( 565475.6, 4190983.6,      80.4,     213.0,       9.1);         ( 565485.6, 4190983.6,      80.7,     213.0,       9.1);
     ( 565495.6, 4190983.6,      81.1,     213.0,       9.1);         ( 565505.6, 4190983.6,      81.8,     213.0,       9.1);
     ( 565535.6, 4190983.6,      83.3,     213.0,       9.1);         ( 565545.6, 4190983.6,      83.6,     213.0,       9.1);
     ( 565555.6, 4190983.6,      84.0,     213.0,       9.1);         ( 565565.6, 4190983.6,      84.3,     213.0,       9.1);
     ( 565575.6, 4190983.6,      84.7,     213.0,       9.1);         ( 565585.6, 4190983.6,      85.1,     213.0,       9.1);
     ( 565595.6, 4190983.6,      85.8,     213.0,       9.1);         ( 565605.6, 4190983.6,      86.4,     213.0,       9.1);
     ( 565615.6, 4190983.6,      87.0,     213.0,       9.1);         ( 565625.6, 4190983.6,      87.3,     213.0,       9.1);
     ( 565055.6, 4190993.6,      65.1,     213.0,       9.1);         ( 565145.6, 4190993.6,      67.4,     213.0,       9.1);
     ( 565155.6, 4190993.6,      67.7,     213.0,       9.1);         ( 565265.6, 4190993.6,      72.5,     213.0,       9.1);
     ( 565275.6, 4190993.6,      72.9,     213.0,       9.1);         ( 565305.6, 4190993.6,      73.8,     213.0,       9.1);
     ( 565315.6, 4190993.6,      74.1,     213.0,       9.1);         ( 565325.6, 4190993.6,      74.5,     213.0,       9.1);   ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:10:30
                                                                                                                        PAGE 141
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     ( 565335.6, 4190993.6,      74.9,     213.0,       9.1);         ( 565345.6, 4190993.6,      75.3,     213.0,       9.1);
     ( 565355.6, 4190993.6,      75.6,     213.0,       9.1);         ( 565365.6, 4190993.6,      76.0,     213.0,       9.1);
     ( 565375.6, 4190993.6,      76.4,     213.0,       9.1);         ( 565385.6, 4190993.6,      77.0,     213.0,       9.1);
     ( 565395.6, 4190993.6,      77.5,     213.0,       9.1);         ( 565425.6, 4190993.6,      78.7,     213.0,       9.1);
     ( 565435.6, 4190993.6,      79.1,     213.0,       9.1);         ( 565445.6, 4190993.6,      79.5,     213.0,       9.1);
     ( 565455.6, 4190993.6,      79.9,     213.0,       9.1);         ( 565465.6, 4190993.6,      80.3,     213.0,       9.1);
     ( 565475.6, 4190993.6,      80.6,     213.0,       9.1);         ( 565485.6, 4190993.6,      81.0,     213.0,       9.1);
     ( 565495.6, 4190993.6,      81.4,     213.0,       9.1);         ( 565505.6, 4190993.6,      82.0,     213.0,       9.1);
     ( 565535.6, 4190993.6,      83.4,     213.0,       9.1);         ( 565545.6, 4190993.6,      83.7,     213.0,       9.1);
     ( 565555.6, 4190993.6,      84.1,     213.0,       9.1);         ( 565565.6, 4190993.6,      84.5,     213.0,       9.1);
     ( 565575.6, 4190993.6,      84.9,     213.0,       9.1);         ( 565585.6, 4190993.6,      85.4,     213.0,       9.1);
     ( 565595.6, 4190993.6,      86.0,     213.0,       9.1);         ( 565605.6, 4190993.6,      86.5,     213.0,       9.1);
     ( 565615.6, 4190993.6,      87.1,     213.0,       9.1);         ( 565625.6, 4190993.6,      87.5,     213.0,       9.1);
     ( 565055.6, 4191003.6,      65.2,     213.0,       9.1);         ( 565065.6, 4191003.6,      65.4,     213.0,       9.1);
     ( 565075.6, 4191003.6,      65.6,     213.0,       9.1);         ( 565085.6, 4191003.6,      66.0,     213.0,       9.1);
     ( 565095.6, 4191003.6,      66.3,     213.0,       9.1);         ( 565105.6, 4191003.6,      66.6,     213.0,       9.1);
     ( 565115.6, 4191003.6,      66.8,     213.0,       9.1);         ( 565125.6, 4191003.6,      66.9,     213.0,       9.1);
     ( 565135.6, 4191003.6,      67.1,     213.0,       9.1);         ( 565145.6, 4191003.6,      67.4,     213.0,       9.1);
     ( 565235.6, 4191003.6,      71.1,     213.0,       9.1);         ( 565245.6, 4191003.6,      71.6,     213.0,       9.1);
     ( 565255.6, 4191003.6,      72.1,     213.0,       9.1);         ( 565265.6, 4191003.6,      72.6,     213.0,       9.1);
     ( 565275.6, 4191003.6,      73.2,     213.0,       9.1);         ( 565305.6, 4191003.6,      73.9,     213.0,       9.1);
     ( 565315.6, 4191003.6,      74.1,     213.0,       9.1);         ( 565325.6, 4191003.6,      74.6,     213.0,       9.1);
     ( 565335.6, 4191003.6,      75.2,     213.0,       9.1);         ( 565345.6, 4191003.6,      75.6,     213.0,       9.1);
     ( 565355.6, 4191003.6,      76.0,     213.0,       9.1);         ( 565365.6, 4191003.6,      76.3,     213.0,       9.1);
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     ( 565375.6, 4191003.6,      76.7,     213.0,       9.1);         ( 565385.6, 4191003.6,      77.1,     213.0,       9.1);
     ( 565395.6, 4191003.6,      77.6,     213.0,       9.1);         ( 565425.6, 4191003.6,      78.7,     213.0,       9.1);
     ( 565435.6, 4191003.6,      79.1,     213.0,       9.1);         ( 565445.6, 4191003.6,      79.6,     213.0,       9.1);
     ( 565455.6, 4191003.6,      80.2,     213.0,       9.1);         ( 565465.6, 4191003.6,      80.6,     213.0,       9.1);
     ( 565475.6, 4191003.6,      81.0,     213.0,       9.1);         ( 565485.6, 4191003.6,      81.3,     213.0,       9.1);
     ( 565495.6, 4191003.6,      81.7,     213.0,       9.1);         ( 565505.6, 4191003.6,      82.1,     213.0,       9.1);
     ( 565535.6, 4191003.6,      83.4,     213.0,       9.1);         ( 565545.6, 4191003.6,      83.7,     213.0,       9.1);
     ( 565555.6, 4191003.6,      84.1,     213.0,       9.1);         ( 565565.6, 4191003.6,      84.6,     213.0,       9.1);
     ( 565575.6, 4191003.6,      85.2,     213.0,       9.1);         ( 565585.6, 4191003.6,      85.7,     213.0,       9.1);
     ( 565595.6, 4191003.6,      86.1,     213.0,       9.1);         ( 565605.6, 4191003.6,      86.6,     213.0,       9.1);
     ( 565615.6, 4191003.6,      87.1,     213.0,       9.1);         ( 565625.6, 4191003.6,      87.6,     213.0,       9.1);
     ( 565045.6, 4191013.6,      65.1,     213.0,       9.1);         ( 565055.6, 4191013.6,      65.4,     213.0,       9.1);
     ( 565065.6, 4191013.6,      65.7,     213.0,       9.1);         ( 565075.6, 4191013.6,      66.0,     213.0,       9.1);
     ( 565085.6, 4191013.6,      66.3,     213.0,       9.1);         ( 565095.6, 4191013.6,      66.6,     213.0,       9.1);
     ( 565105.6, 4191013.6,      66.9,     213.0,       9.1);         ( 565115.6, 4191013.6,      66.9,     213.0,       9.1);
     ( 565125.6, 4191013.6,      67.0,     213.0,       9.1);         ( 565135.6, 4191013.6,      67.1,     213.0,       9.1);
     ( 565145.6, 4191013.6,      67.4,     213.0,       9.1);         ( 565155.6, 4191013.6,      67.7,     213.0,       9.1);
     ( 565165.6, 4191013.6,      68.1,     213.0,       9.1);         ( 565175.6, 4191013.6,      68.8,     213.0,       9.1);
     ( 565185.6, 4191013.6,      69.4,     213.0,       9.1);         ( 565195.6, 4191013.6,      70.0,     213.0,       9.1);
     ( 565205.6, 4191013.6,      70.3,     213.0,       9.1);         ( 565235.6, 4191013.6,      71.3,     213.0,       9.1);
     ( 565245.6, 4191013.6,      71.7,     213.0,       9.1);         ( 565255.6, 4191013.6,      72.1,     213.0,       9.1);     ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***        14:10:30
                                                                                                                 PAGE 142
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     ( 565265.6, 4191013.6,      72.8,     213.0,       9.1);         ( 565275.6, 4191013.6,      73.4,     213.0,       9.1);
     ( 565295.6, 4191013.6,      73.9,     213.0,       9.1);         ( 565305.6, 4191013.6,      74.0,     213.0,       9.1);
     ( 565315.6, 4191013.6,      74.1,     213.0,       9.1);         ( 565325.6, 4191013.6,      74.8,     213.0,       9.1);
     ( 565335.6, 4191013.6,      75.4,     213.0,       9.1);         ( 565345.6, 4191013.6,      76.0,     213.0,       9.1);
     ( 565355.6, 4191013.6,      76.3,     213.0,       9.1);         ( 565365.6, 4191013.6,      76.6,     213.0,       9.1);
     ( 565375.6, 4191013.6,      77.0,     213.0,       9.1);         ( 565385.6, 4191013.6,      77.3,     213.0,       9.1);
     ( 565395.6, 4191013.6,      77.7,     213.0,       9.1);         ( 565425.6, 4191013.6,      78.7,     213.0,       9.1);
     ( 565435.6, 4191013.6,      79.1,     213.0,       9.1);         ( 565445.6, 4191013.6,      79.8,     213.0,       9.1);
     ( 565455.6, 4191013.6,      80.4,     213.0,       9.1);         ( 565465.6, 4191013.6,      81.0,     213.0,       9.1);
     ( 565475.6, 4191013.6,      81.3,     213.0,       9.1);         ( 565485.6, 4191013.6,      81.6,     213.0,       9.1);
     ( 565495.6, 4191013.6,      82.0,     213.0,       9.1);         ( 565505.6, 4191013.6,      82.3,     213.0,       9.1);
     ( 565535.6, 4191013.6,      83.4,     213.0,       9.1);         ( 565545.6, 4191013.6,      83.7,     213.0,       9.1);
     ( 565555.6, 4191013.6,      84.1,     213.0,       9.1);         ( 565565.6, 4191013.6,      84.8,     213.0,       9.1);
     ( 565575.6, 4191013.6,      85.4,     213.0,       9.1);         ( 565585.6, 4191013.6,      86.0,     213.0,       9.1);
     ( 565595.6, 4191013.6,      86.3,     213.0,       9.1);         ( 565605.6, 4191013.6,      86.7,     213.0,       9.1);
     ( 565615.6, 4191013.6,      87.1,     213.0,       9.1);         ( 565625.6, 4191013.6,      87.8,     213.0,       9.1);
     ( 565045.6, 4191023.6,      65.3,     213.0,       9.1);         ( 565055.6, 4191023.6,      65.6,     213.0,       9.1);
     ( 565065.6, 4191023.6,      66.0,     213.0,       9.1);         ( 565075.6, 4191023.6,      66.3,     213.0,       9.1);
     ( 565085.6, 4191023.6,      66.5,     213.0,       9.1);         ( 565095.6, 4191023.6,      66.8,     213.0,       9.1);
     ( 565105.6, 4191023.6,      67.0,     213.0,       9.1);         ( 565115.6, 4191023.6,      67.1,     213.0,       9.1);
     ( 565125.6, 4191023.6,      67.2,     213.0,       9.1);         ( 565135.6, 4191023.6,      67.3,     213.0,       9.1);
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     ( 565145.6, 4191023.6,      67.6,     213.0,       9.1);         ( 565155.6, 4191023.6,      68.0,     213.0,       9.1);
     ( 565165.6, 4191023.6,      68.4,     213.0,       9.1);         ( 565175.6, 4191023.6,      69.0,     213.0,       9.1);
     ( 565185.6, 4191023.6,      69.5,     213.0,       9.1);         ( 565195.6, 4191023.6,      70.1,     213.0,       9.1);
     ( 565205.6, 4191023.6,      70.5,     213.0,       9.1);         ( 565235.6, 4191023.6,      71.6,     213.0,       9.1);
     ( 565245.6, 4191023.6,      72.0,     213.0,       9.1);         ( 565255.6, 4191023.6,      72.4,     213.0,       9.1);
     ( 565265.6, 4191023.6,      73.0,     213.0,       9.1);         ( 565275.6, 4191023.6,      73.5,     213.0,       9.1);
     ( 565295.6, 4191023.6,      74.1,     213.0,       9.1);         ( 565305.6, 4191023.6,      74.2,     213.0,       9.1);
     ( 565315.6, 4191023.6,      74.4,     213.0,       9.1);         ( 565325.6, 4191023.6,      75.0,     213.0,       9.1);
     ( 565335.6, 4191023.6,      75.5,     213.0,       9.1);         ( 565345.6, 4191023.6,      76.1,     213.0,       9.1);
     ( 565355.6, 4191023.6,      76.5,     213.0,       9.1);         ( 565365.6, 4191023.6,      76.9,     213.0,       9.1);
     ( 565375.6, 4191023.6,      77.3,     213.0,       9.1);         ( 565385.6, 4191023.6,      77.6,     213.0,       9.1);
     ( 565395.6, 4191023.6,      78.0,     213.0,       9.1);         ( 565425.6, 4191023.6,      79.0,     213.0,       9.1);
     ( 565435.6, 4191023.6,      79.4,     213.0,       9.1);         ( 565465.6, 4191023.6,      81.1,     213.0,       9.1);
     ( 565475.6, 4191023.6,      81.5,     213.0,       9.1);         ( 565485.6, 4191023.6,      81.9,     213.0,       9.1);
     ( 565495.6, 4191023.6,      82.3,     213.0,       9.1);         ( 565505.6, 4191023.6,      82.6,     213.0,       9.1);
     ( 565535.6, 4191023.6,      83.6,     213.0,       9.1);         ( 565545.6, 4191023.6,      84.0,     213.0,       9.1);
     ( 565555.6, 4191023.6,      84.4,     213.0,       9.1);         ( 565565.6, 4191023.6,      85.0,     213.0,       9.1);
     ( 565575.6, 4191023.6,      85.7,     213.0,       9.1);         ( 565585.6, 4191023.6,      86.3,     213.0,       9.1);
     ( 565595.6, 4191023.6,      86.6,     213.0,       9.1);         ( 565605.6, 4191023.6,      87.0,     213.0,       9.1);
     ( 565615.6, 4191023.6,      87.4,     213.0,       9.1);         ( 565625.6, 4191023.6,      88.0,     213.0,       9.1);
     ( 565045.6, 4191033.6,      65.6,     213.0,       9.1);         ( 565055.6, 4191033.6,      66.0,     213.0,       9.1);
     ( 565065.6, 4191033.6,      66.3,     213.0,       9.1);         ( 565075.6, 4191033.6,      66.6,     213.0,       9.1);
     ( 565135.6, 4191033.6,      67.6,     213.0,       9.1);         ( 565145.6, 4191033.6,      68.0,     213.0,       9.1);
     ( 565155.6, 4191033.6,      68.3,     213.0,       9.1);         ( 565165.6, 4191033.6,      68.7,     213.0,       9.1);   ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***        14:10:30
                                                                                                                  PAGE 143
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                   (METERS)

     ( 565175.6, 4191033.6,      69.1,     213.0,       9.1);         ( 565185.6, 4191033.6,      69.6,     213.0,       9.1);
     ( 565195.6, 4191033.6,      70.1,     213.0,       9.1);         ( 565205.6, 4191033.6,      70.6,     213.0,       9.1);
     ( 565265.6, 4191033.6,      73.1,     213.0,       9.1);         ( 565275.6, 4191033.6,      73.6,     213.0,       9.1);
     ( 565295.6, 4191033.6,      74.2,     213.0,       9.1);         ( 565305.6, 4191033.6,      74.4,     213.0,       9.1);
     ( 565315.6, 4191033.6,      74.7,     213.0,       9.1);         ( 565325.6, 4191033.6,      75.1,     213.0,       9.1);
     ( 565335.6, 4191033.6,      75.6,     213.0,       9.1);         ( 565345.6, 4191033.6,      76.1,     213.0,       9.1);
     ( 565355.6, 4191033.6,      76.6,     213.0,       9.1);         ( 565365.6, 4191033.6,      77.2,     213.0,       9.1);
     ( 565375.6, 4191033.6,      77.6,     213.0,       9.1);         ( 565385.6, 4191033.6,      78.0,     213.0,       9.1);
     ( 565465.6, 4191033.6,      81.1,     213.0,       9.1);         ( 565475.6, 4191033.6,      81.6,     213.0,       9.1);
     ( 565485.6, 4191033.6,      82.2,     213.0,       9.1);         ( 565495.6, 4191033.6,      82.6,     213.0,       9.1);
     ( 565505.6, 4191033.6,      83.0,     213.0,       9.1);         ( 565535.6, 4191033.6,      84.0,     213.0,       9.1);
     ( 565545.6, 4191033.6,      84.3,     213.0,       9.1);         ( 565555.6, 4191033.6,      84.7,     213.0,       9.1);
     ( 565565.6, 4191033.6,      85.4,     213.0,       9.1);         ( 565575.6, 4191033.6,      86.0,     213.0,       9.1);
     ( 565585.6, 4191033.6,      86.6,     213.0,       9.1);         ( 565595.6, 4191033.6,      87.0,     213.0,       9.1);
     ( 565605.6, 4191033.6,      87.3,     213.0,       9.1);         ( 565615.6, 4191033.6,      87.7,     213.0,       9.1);
     ( 565625.6, 4191033.6,      88.1,     213.0,       9.1);         ( 565045.6, 4191043.6,      66.0,     213.0,       9.1);
     ( 565055.6, 4191043.6,      66.3,     213.0,       9.1);         ( 565065.6, 4191043.6,      66.6,     213.0,       9.1);
     ( 565075.6, 4191043.6,      66.9,     213.0,       9.1);         ( 565135.6, 4191043.6,      68.0,     213.0,       9.1);
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     ( 565145.6, 4191043.6,      68.3,     213.0,       9.1);         ( 565155.6, 4191043.6,      68.6,     213.0,       9.1);
     ( 565165.6, 4191043.6,      69.0,     213.0,       9.1);         ( 565175.6, 4191043.6,      69.3,     213.0,       9.1);
     ( 565185.6, 4191043.6,      69.7,     213.0,       9.1);         ( 565195.6, 4191043.6,      70.1,     213.0,       9.1);
     ( 565205.6, 4191043.6,      70.8,     213.0,       9.1);         ( 565265.6, 4191043.6,      73.3,     213.0,       9.1);
     ( 565275.6, 4191043.6,      73.7,     213.0,       9.1);         ( 565295.6, 4191043.6,      74.4,     213.0,       9.1);
     ( 565305.6, 4191043.6,      74.7,     213.0,       9.1);         ( 565315.6, 4191043.6,      75.0,     213.0,       9.1);
     ( 565325.6, 4191043.6,      75.3,     213.0,       9.1);         ( 565335.6, 4191043.6,      75.7,     213.0,       9.1);
     ( 565345.6, 4191043.6,      76.1,     213.0,       9.1);         ( 565355.6, 4191043.6,      76.8,     213.0,       9.1);
     ( 565365.6, 4191043.6,      77.4,     213.0,       9.1);         ( 565375.6, 4191043.6,      78.0,     213.0,       9.1);
     ( 565385.6, 4191043.6,      78.3,     213.0,       9.1);         ( 565465.6, 4191043.6,      81.1,     213.0,       9.1);
     ( 565475.6, 4191043.6,      81.8,     213.0,       9.1);         ( 565485.6, 4191043.6,      82.4,     213.0,       9.1);
     ( 565495.6, 4191043.6,      83.0,     213.0,       9.1);         ( 565505.6, 4191043.6,      83.3,     213.0,       9.1);
     ( 565535.6, 4191043.6,      84.3,     213.0,       9.1);         ( 565545.6, 4191043.6,      84.6,     213.0,       9.1);
     ( 565555.6, 4191043.6,      85.0,     213.0,       9.1);         ( 565565.6, 4191043.6,      85.7,     213.0,       9.1);
     ( 565575.6, 4191043.6,      86.4,     213.0,       9.1);         ( 565585.6, 4191043.6,      87.0,     213.0,       9.1);
     ( 565595.6, 4191043.6,      87.3,     213.0,       9.1);         ( 565605.6, 4191043.6,      87.6,     213.0,       9.1);
     ( 565615.6, 4191043.6,      88.0,     213.0,       9.1);         ( 565625.6, 4191043.6,      88.3,     213.0,       9.1);
     ( 565045.6, 4191053.6,      66.3,     213.0,       9.1);         ( 565055.6, 4191053.6,      66.5,     213.0,       9.1);
     ( 565065.6, 4191053.6,      66.8,     213.0,       9.1);         ( 565075.6, 4191053.6,      67.0,     213.0,       9.1);
     ( 565105.6, 4191053.6,      67.3,     213.0,       9.1);         ( 565115.6, 4191053.6,      67.6,     213.0,       9.1);
     ( 565155.6, 4191053.6,      69.0,     213.0,       9.1);         ( 565165.6, 4191053.6,      69.3,     213.0,       9.1);
     ( 565175.6, 4191053.6,      69.6,     213.0,       9.1);         ( 565185.6, 4191053.6,      70.0,     213.0,       9.1);
     ( 565195.6, 4191053.6,      70.4,     213.0,       9.1);         ( 565205.6, 4191053.6,      71.0,     213.0,       9.1);
     ( 565235.6, 4191053.6,      72.4,     213.0,       9.1);         ( 565245.6, 4191053.6,      72.7,     213.0,       9.1);
     ( 565255.6, 4191053.6,      73.1,     213.0,       9.1);         ( 565265.6, 4191053.6,      73.4,     213.0,       9.1);
     ( 565275.6, 4191053.6,      73.7,     213.0,       9.1);         ( 565295.6, 4191053.6,      74.5,     213.0,       9.1);
     ( 565305.6, 4191053.6,      74.9,     213.0,       9.1);         ( 565315.6, 4191053.6,      75.3,     213.0,       9.1);     ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***       14:10:30
                                                                                                                PAGE 144
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                   (METERS)

     ( 565325.6, 4191053.6,      75.6,     213.0,       9.1);         ( 565335.6, 4191053.6,      76.0,     213.0,       9.1);
     ( 565345.6, 4191053.6,      76.4,     213.0,       9.1);         ( 565355.6, 4191053.6,      77.0,     213.0,       9.1);
     ( 565365.6, 4191053.6,      77.5,     213.0,       9.1);         ( 565375.6, 4191053.6,      78.1,     213.0,       9.1);
     ( 565385.6, 4191053.6,      78.5,     213.0,       9.1);         ( 565465.6, 4191053.6,      81.4,     213.0,       9.1);
     ( 565475.6, 4191053.6,      82.0,     213.0,       9.1);         ( 565485.6, 4191053.6,      82.5,     213.0,       9.1);
     ( 565495.6, 4191053.6,      83.1,     213.0,       9.1);         ( 565505.6, 4191053.6,      83.4,     213.0,       9.1);
     ( 565535.6, 4191053.6,      84.5,     213.0,       9.1);         ( 565545.6, 4191053.6,      84.9,     213.0,       9.1);
     ( 565555.6, 4191053.6,      85.4,     213.0,       9.1);         ( 565565.6, 4191053.6,      86.0,     213.0,       9.1);
     ( 565575.6, 4191053.6,      86.5,     213.0,       9.1);         ( 565585.6, 4191053.6,      87.1,     213.0,       9.1);
     ( 565595.6, 4191053.6,      87.5,     213.0,       9.1);         ( 565605.6, 4191053.6,      87.9,     213.0,       9.1);
     ( 565615.6, 4191053.6,      88.3,     213.0,       9.1);         ( 565625.6, 4191053.6,      88.6,     213.0,       9.1);
     ( 565045.6, 4191063.6,      66.6,     213.0,       9.1);         ( 565055.6, 4191063.6,      66.8,     213.0,       9.1);
     ( 565065.6, 4191063.6,      66.9,     213.0,       9.1);         ( 565075.6, 4191063.6,      67.0,     213.0,       9.1);
     ( 565095.6, 4191063.6,      67.4,     213.0,       9.1);         ( 565105.6, 4191063.6,      67.6,     213.0,       9.1);
     ( 565115.6, 4191063.6,      68.0,     213.0,       9.1);         ( 565125.6, 4191063.6,      68.3,     213.0,       9.1);
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     ( 565135.6, 4191063.6,      68.6,     213.0,       9.1);         ( 565145.6, 4191063.6,      69.0,     213.0,       9.1);
     ( 565155.6, 4191063.6,      69.3,     213.0,       9.1);         ( 565165.6, 4191063.6,      69.6,     213.0,       9.1);
     ( 565175.6, 4191063.6,      70.0,     213.0,       9.1);         ( 565185.6, 4191063.6,      70.3,     213.0,       9.1);
     ( 565195.6, 4191063.6,      70.7,     213.0,       9.1);         ( 565205.6, 4191063.6,      71.1,     213.0,       9.1);
     ( 565235.6, 4191063.6,      72.4,     213.0,       9.1);         ( 565245.6, 4191063.6,      72.7,     213.0,       9.1);
     ( 565255.6, 4191063.6,      73.1,     213.0,       9.1);         ( 565265.6, 4191063.6,      73.4,     213.0,       9.1);
     ( 565275.6, 4191063.6,      73.7,     213.0,       9.1);         ( 565295.6, 4191063.6,      74.6,     213.0,       9.1);
     ( 565305.6, 4191063.6,      75.2,     213.0,       9.1);         ( 565315.6, 4191063.6,      75.6,     213.0,       9.1);
     ( 565325.6, 4191063.6,      76.0,     213.0,       9.1);         ( 565335.6, 4191063.6,      76.3,     213.0,       9.1);
     ( 565345.6, 4191063.6,      76.7,     213.0,       9.1);         ( 565355.6, 4191063.6,      77.1,     213.0,       9.1);
     ( 565365.6, 4191063.6,      77.6,     213.0,       9.1);         ( 565375.6, 4191063.6,      78.1,     213.0,       9.1);
     ( 565385.6, 4191063.6,      78.6,     213.0,       9.1);         ( 565485.6, 4191063.6,      82.6,     213.0,       9.1);
     ( 565495.6, 4191063.6,      83.1,     213.0,       9.1);         ( 565505.6, 4191063.6,      83.4,     213.0,       9.1);
     ( 565535.6, 4191063.6,      84.6,     213.0,       9.1);         ( 565545.6, 4191063.6,      85.2,     213.0,       9.1);
     ( 565555.6, 4191063.6,      85.7,     213.0,       9.1);         ( 565565.6, 4191063.6,      86.1,     213.0,       9.1);
     ( 565575.6, 4191063.6,      86.6,     213.0,       9.1);         ( 565585.6, 4191063.6,      87.1,     213.0,       9.1);
     ( 565595.6, 4191063.6,      87.6,     213.0,       9.1);         ( 565605.6, 4191063.6,      88.2,     213.0,       9.1);
     ( 565615.6, 4191063.6,      88.6,     213.0,       9.1);         ( 565065.6, 4191073.6,      67.0,     213.0,       9.1);
     ( 565075.6, 4191073.6,      67.1,     213.0,       9.1);         ( 565095.6, 4191073.6,      67.7,     213.0,       9.1);
     ( 565105.6, 4191073.6,      68.0,     213.0,       9.1);         ( 565115.6, 4191073.6,      68.3,     213.0,       9.1);
     ( 565125.6, 4191073.6,      68.6,     213.0,       9.1);         ( 565135.6, 4191073.6,      69.0,     213.0,       9.1);
     ( 565145.6, 4191073.6,      69.3,     213.0,       9.1);         ( 565155.6, 4191073.6,      69.6,     213.0,       9.1);
     ( 565165.6, 4191073.6,      70.0,     213.0,       9.1);         ( 565175.6, 4191073.6,      70.3,     213.0,       9.1);
     ( 565185.6, 4191073.6,      70.6,     213.0,       9.1);         ( 565195.6, 4191073.6,      71.0,     213.0,       9.1);
     ( 565205.6, 4191073.6,      71.3,     213.0,       9.1);         ( 565235.6, 4191073.6,      72.4,     213.0,       9.1);
     ( 565245.6, 4191073.6,      72.7,     213.0,       9.1);         ( 565255.6, 4191073.6,      73.1,     213.0,       9.1);
     ( 565265.6, 4191073.6,      73.4,     213.0,       9.1);         ( 565275.6, 4191073.6,      73.7,     213.0,       9.1);
     ( 565295.6, 4191073.6,      74.8,     213.0,       9.1);         ( 565305.6, 4191073.6,      75.4,     213.0,       9.1);
     ( 565315.6, 4191073.6,      76.0,     213.0,       9.1);         ( 565325.6, 4191073.6,      76.3,     213.0,       9.1);
     ( 565335.6, 4191073.6,      76.6,     213.0,       9.1);         ( 565345.6, 4191073.6,      77.0,     213.0,       9.1);     ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***         11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***        14:10:30
                                                                                                                 PAGE 145
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

     ( 565355.6, 4191073.6,      77.3,     213.0,       9.1);         ( 565365.6, 4191073.6,      77.7,     213.0,       9.1);
     ( 565375.6, 4191073.6,      78.1,     213.0,       9.1);         ( 565385.6, 4191073.6,      78.8,     213.0,       9.1);
     ( 565465.6, 4191073.6,      82.0,     213.0,       9.1);         ( 565475.6, 4191073.6,      82.3,     213.0,       9.1);
     ( 565485.6, 4191073.6,      82.7,     213.0,       9.1);         ( 565495.6, 4191073.6,      83.1,     213.0,       9.1);
     ( 565505.6, 4191073.6,      83.4,     213.0,       9.1);         ( 565535.6, 4191073.6,      84.8,     213.0,       9.1);
     ( 565545.6, 4191073.6,      85.4,     213.0,       9.1);         ( 565555.6, 4191073.6,      86.0,     213.0,       9.1);
     ( 565565.6, 4191073.6,      86.3,     213.0,       9.1);         ( 565575.6, 4191073.6,      86.7,     213.0,       9.1);
     ( 565585.6, 4191073.6,      87.1,     213.0,       9.1);         ( 565595.6, 4191073.6,      87.8,     213.0,       9.1);
     ( 565605.6, 4191073.6,      88.4,     213.0,       9.1);         ( 565615.6, 4191073.6,      89.0,     213.0,       9.1);
     ( 565105.6, 4191083.6,      68.3,     213.0,       9.1);         ( 565115.6, 4191083.6,      68.6,     213.0,       9.1);
     ( 565125.6, 4191083.6,      69.0,     213.0,       9.1);         ( 565135.6, 4191083.6,      69.3,     213.0,       9.1);
     ( 565145.6, 4191083.6,      69.5,     213.0,       9.1);         ( 565155.6, 4191083.6,      69.8,     213.0,       9.1);
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    ( 565165.6, 4191083.6,      70.1,     213.0,       9.1);         ( 565175.6, 4191083.6,      70.4,     213.0,       9.1);
    ( 565185.6, 4191083.6,      70.7,     213.0,       9.1);         ( 565195.6, 4191083.6,      71.1,     213.0,       9.1);
    ( 565205.6, 4191083.6,      71.4,     213.0,       9.1);         ( 565235.6, 4191083.6,      72.4,     213.0,       9.1);
    ( 565245.6, 4191083.6,      72.7,     213.0,       9.1);         ( 565255.6, 4191083.6,      73.1,     213.0,       9.1);
    ( 565265.6, 4191083.6,      73.5,     213.0,       9.1);         ( 565275.6, 4191083.6,      73.9,     213.0,       9.1);
    ( 565295.6, 4191083.6,      75.0,     213.0,       9.1);         ( 565305.6, 4191083.6,      75.5,     213.0,       9.1);
    ( 565315.6, 4191083.6,      76.1,     213.0,       9.1);         ( 565325.6, 4191083.6,      76.5,     213.0,       9.1);
    ( 565335.6, 4191083.6,      76.9,     213.0,       9.1);         ( 565345.6, 4191083.6,      77.3,     213.0,       9.1);
    ( 565355.6, 4191083.6,      77.6,     213.0,       9.1);         ( 565365.6, 4191083.6,      78.0,     213.0,       9.1);
    ( 565375.6, 4191083.6,      78.4,     213.0,       9.1);         ( 565385.6, 4191083.6,      79.0,     213.0,       9.1);
    ( 565475.6, 4191083.6,      82.6,     213.0,       9.1);         ( 565485.6, 4191083.6,      83.0,     213.0,       9.1);
    ( 565495.6, 4191083.6,      83.3,     213.0,       9.1);         ( 565505.6, 4191083.6,      83.7,     213.0,       9.1);
    ( 565535.6, 4191083.6,      85.2,     213.0,       9.1);         ( 565545.6, 4191083.6,      85.8,     213.0,       9.1);
    ( 565555.6, 4191083.6,      86.3,     213.0,       9.1);         ( 565565.6, 4191083.6,      86.6,     213.0,       9.1);
    ( 565575.6, 4191083.6,      87.0,     213.0,       9.1);         ( 565585.6, 4191083.6,      87.4,     213.0,       9.1);
    ( 565595.6, 4191083.6,      88.0,     213.0,       9.1);         ( 565605.6, 4191083.6,      88.7,     213.0,       9.1);
    ( 565615.6, 4191083.6,      89.3,     213.0,       9.1);         ( 565035.6, 4191093.6,      66.9,     213.0,       9.1);
    ( 565045.6, 4191093.6,      67.0,     213.0,       9.1);         ( 565175.6, 4191093.6,      70.4,     213.0,       9.1);
    ( 565185.6, 4191093.6,      70.7,     213.0,       9.1);         ( 565195.6, 4191093.6,      71.1,     213.0,       9.1);
    ( 565205.6, 4191093.6,      71.4,     213.0,       9.1);         ( 565235.6, 4191093.6,      72.4,     213.0,       9.1);
    ( 565245.6, 4191093.6,      72.7,     213.0,       9.1);         ( 565255.6, 4191093.6,      73.1,     213.0,       9.1);
    ( 565265.6, 4191093.6,      73.6,     213.0,       9.1);         ( 565275.6, 4191093.6,      74.2,     213.0,       9.1);
    ( 565295.6, 4191093.6,      75.1,     213.0,       9.1);         ( 565305.6, 4191093.6,      75.6,     213.0,       9.1);
    ( 565315.6, 4191093.6,      76.1,     213.0,       9.1);         ( 565325.6, 4191093.6,      76.6,     213.0,       9.1);
    ( 565335.6, 4191093.6,      77.2,     213.0,       9.1);         ( 565345.6, 4191093.6,      77.6,     213.0,       9.1);
    ( 565355.6, 4191093.6,      78.0,     213.0,       9.1);         ( 565365.6, 4191093.6,      78.3,     213.0,       9.1);
    ( 565375.6, 4191093.6,      78.7,     213.0,       9.1);         ( 565385.6, 4191093.6,      79.4,     213.0,       9.1);
    ( 565535.6, 4191093.6,      85.7,     213.0,       9.1);         ( 565545.6, 4191093.6,      86.2,     213.0,       9.1);
    ( 565555.6, 4191093.6,      86.6,     213.0,       9.1);         ( 565565.6, 4191093.6,      87.0,     213.0,       9.1);
    ( 565575.6, 4191093.6,      87.3,     213.0,       9.1);         ( 565585.6, 4191093.6,      87.7,     213.0,       9.1);
    ( 565595.6, 4191093.6,      88.4,     213.0,       9.1);         ( 565605.6, 4191093.6,      89.0,     213.0,       9.1);
    ( 565615.6, 4191093.6,      89.6,     213.0,       9.1);         ( 565035.6, 4191103.6,      67.0,     213.0,       9.1);
    ( 565045.6, 4191103.6,      67.1,     213.0,       9.1);         ( 565055.6, 4191103.6,      67.4,     213.0,       9.1);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                    PAGE 146
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                   *** DISCRETE CARTESIAN RECEPTORS ***
                                (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                              (METERS)

    ( 565065.6, 4191103.6,      67.7,     213.0,       9.1);         ( 565075.6, 4191103.6,      68.0,     213.0,       9.1);
    ( 565235.6, 4191103.6,      72.4,     213.0,       9.1);         ( 565245.6, 4191103.6,      72.7,     213.0,       9.1);
    ( 565255.6, 4191103.6,      73.1,     213.0,       9.1);         ( 565265.6, 4191103.6,      73.8,     213.0,       9.1);
    ( 565275.6, 4191103.6,      74.4,     213.0,       9.1);         ( 565295.6, 4191103.6,      75.3,     213.0,       9.1);
    ( 565305.6, 4191103.6,      75.7,     213.0,       9.1);         ( 565315.6, 4191103.6,      76.1,     213.0,       9.1);
    ( 565325.6, 4191103.6,      76.8,     213.0,       9.1);         ( 565335.6, 4191103.6,      77.4,     213.0,       9.1);
    ( 565345.6, 4191103.6,      78.0,     213.0,       9.1);         ( 565355.6, 4191103.6,      78.3,     213.0,       9.1);
    ( 565365.6, 4191103.6,      78.6,     213.0,       9.1);         ( 565375.6, 4191103.6,      79.0,     213.0,       9.1);
    ( 565385.6, 4191103.6,      79.7,     213.0,       9.1);         ( 565485.6, 4191103.6,      83.6,     213.0,       9.1);
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     ( 565495.6, 4191103.6,      84.0,     213.0,       9.1);         ( 565505.6, 4191103.6,      84.7,     213.0,       9.1);
     ( 565525.6, 4191103.6,      85.9,     213.0,       9.1);         ( 565535.6, 4191103.6,      86.3,     213.0,       9.1);
     ( 565545.6, 4191103.6,      86.6,     213.0,       9.1);         ( 565555.6, 4191103.6,      87.0,     213.0,       9.1);
     ( 565565.6, 4191103.6,      87.3,     213.0,       9.1);         ( 565575.6, 4191103.6,      87.6,     213.0,       9.1);
     ( 565585.6, 4191103.6,      88.0,     213.0,       9.1);         ( 565595.6, 4191103.6,      88.7,     213.0,       9.1);
     ( 565605.6, 4191103.6,      89.4,     213.0,       9.1);         ( 565615.6, 4191103.6,      90.0,     213.0,       9.1);
     ( 565025.6, 4191113.6,      67.2,     213.0,       9.1);         ( 565035.6, 4191113.6,      67.2,     213.0,       9.1);
     ( 565045.6, 4191113.6,      67.3,     213.0,       9.1);         ( 565055.6, 4191113.6,      67.6,     213.0,       9.1);
     ( 565065.6, 4191113.6,      68.0,     213.0,       9.1);         ( 565075.6, 4191113.6,      68.3,     213.0,       9.1);
     ( 565125.6, 4191113.6,      69.7,     213.0,       9.1);         ( 565135.6, 4191113.6,      70.0,     213.0,       9.1);
     ( 565145.6, 4191113.6,      70.1,     213.0,       9.1);         ( 565155.6, 4191113.6,      70.2,     213.0,       9.1);
     ( 565165.6, 4191113.6,      70.3,     213.0,       9.1);         ( 565175.6, 4191113.6,      70.6,     213.0,       9.1);
     ( 565185.6, 4191113.6,      71.0,     213.0,       9.1);         ( 565195.6, 4191113.6,      71.3,     213.0,       9.1);
     ( 565205.6, 4191113.6,      71.6,     213.0,       9.1);         ( 565295.6, 4191113.6,      75.5,     213.0,       9.1);
     ( 565305.6, 4191113.6,      75.9,     213.0,       9.1);         ( 565315.6, 4191113.6,      76.4,     213.0,       9.1);
     ( 565325.6, 4191113.6,      77.0,     213.0,       9.1);         ( 565335.6, 4191113.6,      77.5,     213.0,       9.1);
     ( 565345.6, 4191113.6,      78.1,     213.0,       9.1);         ( 565355.6, 4191113.6,      78.4,     213.0,       9.1);
     ( 565365.6, 4191113.6,      78.7,     213.0,       9.1);         ( 565375.6, 4191113.6,      79.1,     213.0,       9.1);
     ( 565385.6, 4191113.6,      79.8,     213.0,       9.1);         ( 565485.6, 4191113.6,      83.7,     213.0,       9.1);
     ( 565495.6, 4191113.6,      84.1,     213.0,       9.1);         ( 565505.6, 4191113.6,      84.8,     213.0,       9.1);
     ( 565525.6, 4191113.6,      86.1,     213.0,       9.1);         ( 565535.6, 4191113.6,      86.5,     213.0,       9.1);
     ( 565545.6, 4191113.6,      86.9,     213.0,       9.1);         ( 565555.6, 4191113.6,      87.3,     213.0,       9.1);
     ( 565565.6, 4191113.6,      87.6,     213.0,       9.1);         ( 565575.6, 4191113.6,      88.0,     213.0,       9.1);
     ( 565585.6, 4191113.6,      88.4,     213.0,       9.1);         ( 565595.6, 4191113.6,      89.0,     213.0,       9.1);
     ( 565605.6, 4191113.6,      89.7,     213.0,       9.1);         ( 565615.6, 4191113.6,      90.3,     213.0,       9.1);
     ( 565025.6, 4191123.6,      67.6,     213.0,       9.1);         ( 565035.6, 4191123.6,      67.6,     213.0,       9.1);
     ( 565045.6, 4191123.6,      67.6,     213.0,       9.1);         ( 565055.6, 4191123.6,      68.0,     213.0,       9.1);
     ( 565065.6, 4191123.6,      68.3,     213.0,       9.1);         ( 565125.6, 4191123.6,      69.7,     213.0,       9.1);
     ( 565135.6, 4191123.6,      70.0,     213.0,       9.1);         ( 565145.6, 4191123.6,      70.2,     213.0,       9.1);
     ( 565155.6, 4191123.6,      70.4,     213.0,       9.1);         ( 565165.6, 4191123.6,      70.6,     213.0,       9.1);
     ( 565175.6, 4191123.6,      71.0,     213.0,       9.1);         ( 565185.6, 4191123.6,      71.3,     213.0,       9.1);
     ( 565195.6, 4191123.6,      71.6,     213.0,       9.1);         ( 565205.6, 4191123.6,      72.0,     213.0,       9.1);
     ( 565245.6, 4191123.6,      73.3,     213.0,       9.1);         ( 565335.6, 4191123.6,      77.6,     213.0,       9.1);
     ( 565345.6, 4191123.6,      78.1,     213.0,       9.1);         ( 565355.6, 4191123.6,      78.4,     213.0,       9.1);
     ( 565365.6, 4191123.6,      78.7,     213.0,       9.1);         ( 565375.6, 4191123.6,      79.1,     213.0,       9.1);
     ( 565385.6, 4191123.6,      79.8,     213.0,       9.1);         ( 565495.6, 4191123.6,      84.1,     213.0,       9.1);    ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:10:30
                                                                                                                        PAGE 147
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                    (METERS)

     ( 565525.6, 4191123.6,      86.1,     213.0,       9.1);         ( 565535.6, 4191123.6,      86.6,     213.0,       9.1);
     ( 565545.6, 4191123.6,      87.2,     213.0,       9.1);         ( 565555.6, 4191123.6,      87.6,     213.0,       9.1);
     ( 565565.6, 4191123.6,      88.0,     213.0,       9.1);         ( 565575.6, 4191123.6,      88.3,     213.0,       9.1);
     ( 565585.6, 4191123.6,      88.7,     213.0,       9.1);         ( 565595.6, 4191123.6,      89.4,     213.0,       9.1);
     ( 565605.6, 4191123.6,      90.0,     213.0,       9.1);         ( 565615.6, 4191123.6,      90.6,     213.0,       9.1);
     ( 565025.6, 4191133.6,      67.9,     213.0,       9.1);         ( 565035.6, 4191133.6,      67.9,     213.0,       9.1);
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     ( 565045.6, 4191133.6,      68.0,     213.0,       9.1);         ( 565055.6, 4191133.6,      68.3,     213.0,       9.1);
     ( 565065.6, 4191133.6,      68.6,     213.0,       9.1);         ( 565125.6, 4191133.6,      69.7,     213.0,       9.1);
     ( 565135.6, 4191133.6,      70.1,     213.0,       9.1);         ( 565145.6, 4191133.6,      70.4,     213.0,       9.1);
     ( 565155.6, 4191133.6,      70.7,     213.0,       9.1);         ( 565165.6, 4191133.6,      71.0,     213.0,       9.1);
     ( 565175.6, 4191133.6,      71.3,     213.0,       9.1);         ( 565185.6, 4191133.6,      71.6,     213.0,       9.1);
     ( 565195.6, 4191133.6,      72.0,     213.0,       9.1);         ( 565205.6, 4191133.6,      72.3,     213.0,       9.1);
     ( 565245.6, 4191133.6,      73.6,     213.0,       9.1);         ( 565265.6, 4191133.6,      74.3,     213.0,       9.1);
     ( 565485.6, 4191133.6,      83.7,     213.0,       9.1);         ( 565495.6, 4191133.6,      84.1,     213.0,       9.1);
     ( 565525.6, 4191133.6,      86.1,     213.0,       9.1);         ( 565535.6, 4191133.6,      86.8,     213.0,       9.1);
     ( 565545.6, 4191133.6,      87.4,     213.0,       9.1);         ( 565555.6, 4191133.6,      88.0,     213.0,       9.1);
     ( 565565.6, 4191133.6,      88.3,     213.0,       9.1);         ( 565575.6, 4191133.6,      88.6,     213.0,       9.1);
     ( 565585.6, 4191133.6,      89.0,     213.0,       9.1);         ( 565595.6, 4191133.6,      89.7,     213.0,       9.1);
     ( 565605.6, 4191133.6,      90.4,     213.0,       9.1);         ( 565615.6, 4191133.6,      90.9,     213.0,       9.1);
     ( 565025.6, 4191143.6,      68.2,     213.0,       9.1);         ( 565035.6, 4191143.6,      68.2,     213.0,       9.1);
     ( 565045.6, 4191143.6,      68.3,     213.0,       9.1);         ( 565055.6, 4191143.6,      68.6,     213.0,       9.1);
     ( 565065.6, 4191143.6,      69.0,     213.0,       9.1);         ( 565075.6, 4191143.6,      69.2,     213.0,       9.1);
     ( 565085.6, 4191143.6,      69.2,     213.0,       9.1);         ( 565095.6, 4191143.6,      69.2,     213.0,       9.1);
     ( 565125.6, 4191143.6,      70.0,     213.0,       9.1);         ( 565135.6, 4191143.6,      70.3,     213.0,       9.1);
     ( 565145.6, 4191143.6,      70.6,     213.0,       9.1);         ( 565155.6, 4191143.6,      71.0,     213.0,       9.1);
     ( 565165.6, 4191143.6,      71.3,     213.0,       9.1);         ( 565175.6, 4191143.6,      71.6,     213.0,       9.1);
     ( 565185.6, 4191143.6,      72.0,     213.0,       9.1);         ( 565195.6, 4191143.6,      72.3,     213.0,       9.1);
     ( 565205.6, 4191143.6,      72.5,     213.0,       9.1);         ( 565245.6, 4191143.6,      73.7,     213.0,       9.1);
     ( 565265.6, 4191143.6,      74.5,     213.0,       9.1);         ( 565485.6, 4191143.6,      84.2,     213.0,       9.1);
     ( 565495.6, 4191143.6,      84.6,     213.0,       9.1);         ( 565525.6, 4191143.6,      86.4,     213.0,       9.1);
     ( 565535.6, 4191143.6,      87.0,     213.0,       9.1);         ( 565545.6, 4191143.6,      87.7,     213.0,       9.1);
     ( 565555.6, 4191143.6,      88.3,     213.0,       9.1);         ( 565565.6, 4191143.6,      88.6,     213.0,       9.1);
     ( 565575.6, 4191143.6,      89.0,     213.0,       9.1);         ( 565585.6, 4191143.6,      89.4,     213.0,       9.1);
     ( 565595.6, 4191143.6,      90.0,     213.0,       9.1);         ( 565605.6, 4191143.6,      90.7,     213.0,       9.1);
     ( 565615.6, 4191143.6,      91.2,     213.0,       9.1);         ( 565025.6, 4191153.6,      68.6,     213.0,       9.1);
     ( 565035.6, 4191153.6,      68.6,     213.0,       9.1);         ( 565045.6, 4191153.6,      68.6,     213.0,       9.1);
     ( 565055.6, 4191153.6,      69.0,     213.0,       9.1);         ( 565065.6, 4191153.6,      69.3,     213.0,       9.1);
     ( 565075.6, 4191153.6,      69.6,     213.0,       9.1);         ( 565085.6, 4191153.6,      69.6,     213.0,       9.1);
     ( 565095.6, 4191153.6,      69.6,     213.0,       9.1);         ( 565105.6, 4191153.6,      69.6,     213.0,       9.1);
     ( 565115.6, 4191153.6,      70.0,     213.0,       9.1);         ( 565125.6, 4191153.6,      70.3,     213.0,       9.1);
     ( 565135.6, 4191153.6,      70.6,     213.0,       9.1);         ( 565145.6, 4191153.6,      71.0,     213.0,       9.1);
     ( 565155.6, 4191153.6,      71.3,     213.0,       9.1);         ( 565165.6, 4191153.6,      71.6,     213.0,       9.1);
     ( 565175.6, 4191153.6,      72.0,     213.0,       9.1);         ( 565185.6, 4191153.6,      72.3,     213.0,       9.1);
     ( 565195.6, 4191153.6,      72.6,     213.0,       9.1);         ( 565205.6, 4191153.6,      72.8,     213.0,       9.1);
     ( 565265.6, 4191153.6,      74.6,     213.0,       9.1);         ( 565525.6, 4191153.6,      86.7,     213.0,       9.1);    ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***        14:10:30
                                                                                                                  PAGE 148
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                     (METERS)

     ( 565535.6, 4191153.6,      87.4,     213.0,       9.1);         ( 565545.6, 4191153.6,      88.0,     213.0,       9.1);
     ( 565555.6, 4191153.6,      88.6,     213.0,       9.1);         ( 565565.6, 4191153.6,      89.0,     213.0,       9.1);
     ( 565575.6, 4191153.6,      89.3,     213.0,       9.1);         ( 565585.6, 4191153.6,      89.7,     213.0,       9.1);
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     ( 565595.6, 4191153.6,      90.4,     213.0,       9.1);         ( 565605.6, 4191153.6,      91.0,     213.0,       9.1);
     ( 565615.6, 4191153.6,      91.6,     213.0,       9.1);         ( 565025.6, 4191163.6,      68.9,     213.0,       9.1);
     ( 565035.6, 4191163.6,      68.9,     213.0,       9.1);         ( 565045.6, 4191163.6,      69.0,     213.0,       9.1);
     ( 565055.6, 4191163.6,      69.3,     213.0,       9.1);         ( 565065.6, 4191163.6,      69.6,     213.0,       9.1);
     ( 565075.6, 4191163.6,      69.9,     213.0,       9.1);         ( 565085.6, 4191163.6,      69.9,     213.0,       9.1);
     ( 565095.6, 4191163.6,      69.9,     213.0,       9.1);         ( 565105.6, 4191163.6,      70.0,     213.0,       9.1);
     ( 565115.6, 4191163.6,      70.3,     213.0,       9.1);         ( 565125.6, 4191163.6,      70.6,     213.0,       9.1);
     ( 565135.6, 4191163.6,      71.0,     213.0,       9.1);         ( 565145.6, 4191163.6,      71.3,     213.0,       9.1);
     ( 565155.6, 4191163.6,      71.6,     213.0,       9.1);         ( 565165.6, 4191163.6,      72.0,     213.0,       9.1);
     ( 565265.6, 4191163.6,      74.8,     213.0,       9.1);         ( 565575.6, 4191163.6,      89.6,     213.0,       9.1);
     ( 565585.6, 4191163.6,      90.0,     213.0,       9.1);         ( 565595.6, 4191163.6,      90.7,     213.0,       9.1);
     ( 565605.6, 4191163.6,      91.4,     213.0,       9.1);         ( 565615.6, 4191163.6,      91.9,     213.0,       9.1);
     ( 565025.6, 4191173.6,      69.2,     213.0,       9.1);         ( 565035.6, 4191173.6,      69.2,     213.0,       9.1);
     ( 565045.6, 4191173.6,      69.3,     213.0,       9.1);         ( 565055.6, 4191173.6,      69.6,     213.0,       9.1);
     ( 565065.6, 4191173.6,      70.0,     213.0,       9.1);         ( 565075.6, 4191173.6,      70.2,     213.0,       9.1);
     ( 565085.6, 4191173.6,      70.2,     213.0,       9.1);         ( 565095.6, 4191173.6,      70.2,     213.0,       9.1);
     ( 565105.6, 4191173.6,      70.3,     213.0,       9.1);         ( 565115.6, 4191173.6,      70.6,     213.0,       9.1);
     ( 565125.6, 4191173.6,      71.0,     213.0,       9.1);         ( 565135.6, 4191173.6,      71.3,     213.0,       9.1);
     ( 565145.6, 4191173.6,      71.6,     213.0,       9.1);         ( 565155.6, 4191173.6,      72.0,     213.0,       9.1);
     ( 565165.6, 4191173.6,      72.3,     213.0,       9.1);         ( 565495.6, 4191173.6,      86.1,     213.0,       9.1);
     ( 565505.6, 4191173.6,      86.5,     213.0,       9.1);         ( 565515.6, 4191173.6,      86.9,     213.0,       9.1);
     ( 565525.6, 4191173.6,      87.4,     213.0,       9.1);         ( 565535.6, 4191173.6,      88.0,     213.0,       9.1);
     ( 565545.6, 4191173.6,      88.5,     213.0,       9.1);         ( 565125.6, 4191183.6,      71.3,     213.0,       9.1);
     ( 565135.6, 4191183.6,      71.6,     213.0,       9.1);         ( 565145.6, 4191183.6,      72.0,     213.0,       9.1);
     ( 565155.6, 4191183.6,      72.3,     213.0,       9.1);         ( 565165.6, 4191183.6,      72.6,     213.0,       9.1);
     ( 565495.6, 4191183.6,      86.1,     213.0,       9.1);         ( 565505.6, 4191183.6,      86.6,     213.0,       9.1);
     ( 565515.6, 4191183.6,      87.2,     213.0,       9.1);         ( 565525.6, 4191183.6,      87.7,     213.0,       9.1);
     ( 565535.6, 4191183.6,      88.1,     213.0,       9.1);         ( 565545.6, 4191183.6,      88.6,     213.0,       9.1);
     ( 565555.6, 4191183.6,      89.1,     213.0,       9.1);         ( 565565.6, 4191183.6,      89.6,     213.0,       9.1);
     ( 565575.6, 4191183.6,      90.2,     213.0,       9.1);         ( 565585.6, 4191183.6,      90.7,     213.0,       9.1);
     ( 565595.6, 4191183.6,      91.1,     213.0,       9.1);         ( 565165.6, 4191193.6,      72.9,     213.0,       9.1);
     ( 565495.6, 4191193.6,      86.1,     213.0,       9.1);         ( 565505.6, 4191193.6,      86.8,     213.0,       9.1);
     ( 565515.6, 4191193.6,      87.4,     213.0,       9.1);         ( 565525.6, 4191193.6,      88.0,     213.0,       9.1);
     ( 565535.6, 4191193.6,      88.3,     213.0,       9.1);         ( 565545.6, 4191193.6,      88.7,     213.0,       9.1);
     ( 565555.6, 4191193.6,      89.1,     213.0,       9.1);         ( 565565.6, 4191193.6,      89.8,     213.0,       9.1);
     ( 565575.6, 4191193.6,      90.4,     213.0,       9.1);         ( 565585.6, 4191193.6,      91.0,     213.0,       9.1);
     ( 565595.6, 4191193.6,      91.3,     213.0,       9.1);         ( 565605.6, 4191193.6,      91.7,     213.0,       9.1);
     ( 565615.6, 4191193.6,      92.1,     213.0,       9.1);         ( 565085.6, 4191203.6,      71.2,     213.0,       9.1);
     ( 565495.6, 4191203.6,      86.4,     213.0,       9.1);         ( 565505.6, 4191203.6,      87.0,     213.0,       9.1);
     ( 565085.6, 4191213.6,      71.6,     213.0,       9.1);         ( 565095.6, 4191213.6,      71.6,     213.0,       9.1);
     ( 565125.6, 4191213.6,      72.3,     213.0,       9.1);         ( 565135.6, 4191213.6,      72.6,     213.0,       9.1);
     ( 565145.6, 4191213.6,      72.8,     213.0,       9.1);         ( 565155.6, 4191213.6,      72.9,     213.0,       9.1);   ***
AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                ***        14:10:30
                                                                                                                 PAGE 149

 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                   *** DISCRETE CARTESIAN RECEPTORS ***
                                  (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)
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```
( 565165.6, 4191213.6,      73.0,     213.0,       9.1);         ( 565175.6, 4191213.6,      73.2,     213.0,       9.1);
( 565185.6, 4191213.6,      73.4,     213.0,       9.1);         ( 565195.6, 4191213.6,      73.6,     213.0,       9.1);
( 565085.6, 4191223.6,      71.9,     213.0,       9.1);         ( 565095.6, 4191223.6,      71.9,     213.0,       9.1);
( 565125.6, 4191223.6,      72.6,     213.0,       9.1);         ( 565135.6, 4191223.6,      72.9,     213.0,       9.1);
( 565145.6, 4191223.6,      72.9,     213.0,       9.1);         ( 565155.6, 4191223.6,      73.0,     213.0,       9.1);
( 565165.6, 4191223.6,      73.1,     213.0,       9.1);         ( 565175.6, 4191223.6,      73.4,     213.0,       9.1);
( 565185.6, 4191223.6,      73.7,     213.0,       9.1);         ( 565195.6, 4191223.6,      74.0,     213.0,       9.1);
( 565215.6, 4191223.6,      74.6,     213.0,       9.1);         ( 565225.6, 4191223.6,      75.0,     213.0,       9.1);
( 565595.6, 4191223.6,      91.4,     213.0,       9.1);         ( 565605.6, 4191223.6,      91.7,     213.0,       9.1);
( 565075.6, 4191233.6,      72.2,     213.0,       9.1);         ( 565085.6, 4191233.6,      72.2,     213.0,       9.1);
( 565095.6, 4191233.6,      72.2,     213.0,       9.1);         ( 565125.6, 4191233.6,      72.8,     213.0,       9.1);
( 565135.6, 4191233.6,      73.0,     213.0,       9.1);         ( 565145.6, 4191233.6,      73.1,     213.0,       9.1);
( 565155.6, 4191233.6,      73.2,     213.0,       9.1);         ( 565165.6, 4191233.6,      73.3,     213.0,       9.1);
( 565175.6, 4191233.6,      73.6,     213.0,       9.1);         ( 565185.6, 4191233.6,      74.0,     213.0,       9.1);
( 565195.6, 4191233.6,      74.3,     213.0,       9.1);         ( 565215.6, 4191233.6,      75.0,     213.0,       9.1);
( 565225.6, 4191233.6,      75.3,     213.0,       9.1);         ( 565235.6, 4191233.6,      75.6,     213.0,       9.1);
( 565245.6, 4191233.6,      76.0,     213.0,       9.1);         ( 565255.6, 4191233.6,      76.3,     213.0,       9.1);
( 565265.6, 4191233.6,      76.6,     213.0,       9.1);         ( 565275.6, 4191233.6,      77.0,     213.0,       9.1);
( 565285.6, 4191233.6,      77.3,     213.0,       9.1);         ( 565295.6, 4191233.6,      77.6,     213.0,       9.1);
( 565485.6, 4191233.6,      86.5,     213.0,       9.1);         ( 565495.6, 4191233.6,      87.1,     213.0,       9.1);
( 565505.6, 4191233.6,      87.4,     213.0,       9.1);         ( 565515.6, 4191233.6,      87.7,     213.0,       9.1);
( 565525.6, 4191233.6,      88.1,     213.0,       9.1);         ( 565535.6, 4191233.6,      88.8,     213.0,       9.1);
( 565545.6, 4191233.6,      89.5,     213.0,       9.1);         ( 565555.6, 4191233.6,      90.1,     213.0,       9.1);
( 565565.6, 4191233.6,      90.4,     213.0,       9.1);         ( 565575.6, 4191233.6,      90.7,     213.0,       9.1);
( 565585.6, 4191233.6,      91.1,     213.0,       9.1);         ( 565595.6, 4191233.6,      91.5,     213.0,       9.1);
( 565605.6, 4191233.6,      91.9,     213.0,       9.1);         ( 565025.6, 4191243.6,      71.2,     213.0,       9.1);
( 565035.6, 4191243.6,      71.4,     213.0,       9.1);         ( 565045.6, 4191243.6,      71.6,     213.0,       9.1);
( 565125.6, 4191243.6,      72.9,     213.0,       9.1);         ( 565135.6, 4191243.6,      73.0,     213.0,       9.1);
( 565145.6, 4191243.6,      73.2,     213.0,       9.1);         ( 565155.6, 4191243.6,      73.4,     213.0,       9.1);
( 565165.6, 4191243.6,      73.6,     213.0,       9.1);         ( 565175.6, 4191243.6,      74.0,     213.0,       9.1);
( 565185.6, 4191243.6,      74.3,     213.0,       9.1);         ( 565215.6, 4191243.6,      75.3,     213.0,       9.1);
( 565225.6, 4191243.6,      75.6,     213.0,       9.1);         ( 565235.6, 4191243.6,      76.0,     213.0,       9.1);
( 565245.6, 4191243.6,      76.3,     213.0,       9.1);         ( 565255.6, 4191243.6,      76.6,     213.0,       9.1);
( 565265.6, 4191243.6,      77.0,     213.0,       9.1);         ( 565485.6, 4191243.6,      86.6,     213.0,       9.1);
( 565495.6, 4191243.6,      87.1,     213.0,       9.1);         ( 565505.6, 4191243.6,      87.4,     213.0,       9.1);
( 565515.6, 4191243.6,      87.7,     213.0,       9.1);         ( 565525.6, 4191243.6,      88.1,     213.0,       9.1);
( 565535.6, 4191243.6,      88.8,     213.0,       9.1);         ( 565545.6, 4191243.6,      89.5,     213.0,       9.1);
( 565555.6, 4191243.6,      90.1,     213.0,       9.1);         ( 565565.6, 4191243.6,      90.4,     213.0,       9.1);
( 565575.6, 4191243.6,      90.7,     213.0,       9.1);         ( 565585.6, 4191243.6,      91.1,     213.0,       9.1);
( 565595.6, 4191243.6,      91.6,     213.0,       9.1);         ( 565605.6, 4191243.6,      92.2,     213.0,       9.1);
( 565025.6, 4191253.6,      71.4,     213.0,       9.1);         ( 565035.6, 4191253.6,      71.7,     213.0,       9.1);
( 565045.6, 4191253.6,      72.0,     213.0,       9.1);         ( 565055.6, 4191253.6,      72.3,     213.0,       9.1);
( 565065.6, 4191253.6,      72.6,     213.0,       9.1);         ( 565105.6, 4191253.6,      72.9,     213.0,       9.1);
( 565115.6, 4191253.6,      72.9,     213.0,       9.1);         ( 565125.6, 4191253.6,      73.0,     213.0,       9.1);
( 565135.6, 4191253.6,      73.1,     213.0,       9.1);         ( 565145.6, 4191253.6,      73.4,     213.0,       9.1);
```

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ( 565155.6, | 4191253.6, | 73.7, | 213.0, | 9.1); | ( 565165.6, | 4191253.6, | 74.0, | 213.0, | 9.1); |
| ( 565175.6, | 4191253.6, | 74.3, | 213.0, | 9.1); | ( 565185.6, | 4191253.6, | 74.6, | 213.0, | 9.1); |
| ( 565215.6, | 4191253.6, | 75.6, | 213.0, | 9.1); | ( 565225.6, | 4191253.6, | 76.0, | 213.0, | 9.1); |
| ( 565235.6, | 4191253.6, | 76.3, | 213.0, | 9.1); | ( 565245.6, | 4191253.6, | 76.6, | 213.0, | 9.1); |
| ( 565255.6, | 4191253.6, | 77.0, | 213.0, | 9.1); | ( 565265.6, | 4191253.6, | 77.3, | 213.0, | 9.1); |
| ( 565275.6, | 4191253.6, | 77.6, | 213.0, | 9.1); | ( 565285.6, | 4191253.6, | 78.0, | 213.0, | 9.1); |
| ( 565295.6, | 4191253.6, | 78.3, | 213.0, | 9.1); | ( 565415.6, | 4191253.6, | 83.3, | 213.0, | 9.1); |
| ( 565425.6, | 4191253.6, | 83.7, | 213.0, | 9.1); | ( 565435.6, | 4191253.6, | 84.1, | 213.0, | 9.1); |
| ( 565535.6, | 4191253.6, | 88.8, | 213.0, | 9.1); | ( 565545.6, | 4191253.6, | 89.5, | 213.0, | 9.1); |
| ( 565555.6, | 4191253.6, | 90.1, | 213.0, | 9.1); | ( 565565.6, | 4191253.6, | 90.4, | 213.0, | 9.1); |
| ( 565575.6, | 4191253.6, | 90.7, | 213.0, | 9.1); | ( 565585.6, | 4191253.6, | 91.1, | 213.0, | 9.1); |
| ( 565595.6, | 4191253.6, | 91.8, | 213.0, | 9.1); | ( 565605.6, | 4191253.6, | 92.4, | 213.0, | 9.1); |
| ( 565025.6, | 4191263.6, | 71.6, | 213.0, | 9.1); | ( 565035.6, | 4191263.6, | 72.0, | 213.0, | 9.1); |
| ( 565045.6, | 4191263.6, | 72.3, | 213.0, | 9.1); | ( 565055.6, | 4191263.6, | 72.6, | 213.0, | 9.1); |
| ( 565065.6, | 4191263.6, | 73.0, | 213.0, | 9.1); | ( 565075.6, | 4191263.6, | 73.2, | 213.0, | 9.1); |
| ( 565085.6, | 4191263.6, | 73.2, | 213.0, | 9.1); | ( 565095.6, | 4191263.6, | 73.2, | 213.0, | 9.1); |
| ( 565105.6, | 4191263.6, | 73.2, | 213.0, | 9.1); | ( 565115.6, | 4191263.6, | 73.2, | 213.0, | 9.1); |
| ( 565125.6, | 4191263.6, | 73.2, | 213.0, | 9.1); | ( 565135.6, | 4191263.6, | 73.3, | 213.0, | 9.1); |
| ( 565145.6, | 4191263.6, | 73.6, | 213.0, | 9.1); | ( 565155.6, | 4191263.6, | 74.0, | 213.0, | 9.1); |
| ( 565165.6, | 4191263.6, | 74.3, | 213.0, | 9.1); | ( 565175.6, | 4191263.6, | 74.6, | 213.0, | 9.1); |
| ( 565185.6, | 4191263.6, | 75.0, | 213.0, | 9.1); | ( 565215.6, | 4191263.6, | 76.0, | 213.0, | 9.1); |
| ( 565225.6, | 4191263.6, | 76.3, | 213.0, | 9.1); | ( 565235.6, | 4191263.6, | 76.6, | 213.0, | 9.1); |
| ( 565245.6, | 4191263.6, | 77.0, | 213.0, | 9.1); | ( 565255.6, | 4191263.6, | 77.3, | 213.0, | 9.1); |
| ( 565265.6, | 4191263.6, | 77.5, | 213.0, | 9.1); | ( 565285.6, | 4191263.6, | 78.1, | 213.0, | 9.1); |
| ( 565295.6, | 4191263.6, | 78.4, | 213.0, | 9.1); | ( 565415.6, | 4191263.6, | 83.5, | 213.0, | 9.1); |
| ( 565425.6, | 4191263.6, | 83.9, | 213.0, | 9.1); | ( 565435.6, | 4191263.6, | 84.4, | 213.0, | 9.1); |
| ( 565445.6, | 4191263.6, | 85.0, | 213.0, | 9.1); | ( 565575.6, | 4191263.6, | 90.9, | 213.0, | 9.1); |
| ( 565585.6, | 4191263.6, | 91.4, | 213.0, | 9.1); | ( 565595.6, | 4191263.6, | 92.0, | 213.0, | 9.1); |
| ( 565065.6, | 4191273.6, | 73.3, | 213.0, | 9.1); | ( 565075.6, | 4191273.6, | 73.6, | 213.0, | 9.1); |
| ( 565085.6, | 4191273.6, | 73.6, | 213.0, | 9.1); | ( 565095.6, | 4191273.6, | 73.6, | 213.0, | 9.1); |
| ( 565105.6, | 4191273.6, | 73.6, | 213.0, | 9.1); | ( 565115.6, | 4191273.6, | 73.6, | 213.0, | 9.1); |
| ( 565125.6, | 4191273.6, | 73.6, | 213.0, | 9.1); | ( 565135.6, | 4191273.6, | 73.6, | 213.0, | 9.1); |
| ( 565145.6, | 4191273.6, | 74.0, | 213.0, | 9.1); | ( 565155.6, | 4191273.6, | 74.3, | 213.0, | 9.1); |
| ( 565165.6, | 4191273.6, | 74.6, | 213.0, | 9.1); | ( 565175.6, | 4191273.6, | 75.0, | 213.0, | 9.1); |
| ( 565185.6, | 4191273.6, | 75.3, | 213.0, | 9.1); | ( 565205.6, | 4191273.6, | 76.0, | 213.0, | 9.1); |
| ( 565215.6, | 4191273.6, | 76.3, | 213.0, | 9.1); | ( 565225.6, | 4191273.6, | 76.6, | 213.0, | 9.1); |
| ( 565235.6, | 4191273.6, | 77.0, | 213.0, | 9.1); | ( 565245.6, | 4191273.6, | 77.3, | 213.0, | 9.1); |
| ( 565255.6, | 4191273.6, | 77.6, | 213.0, | 9.1); | ( 565265.6, | 4191273.6, | 77.8, | 213.0, | 9.1); |
| ( 565285.6, | 4191273.6, | 78.1, | 213.0, | 9.1); | ( 565415.6, | 4191273.6, | 83.6, | 213.0, | 9.1); |
| ( 565425.6, | 4191273.6, | 84.2, | 213.0, | 9.1); | ( 565435.6, | 4191273.6, | 84.7, | 213.0, | 9.1); |
| ( 565445.6, | 4191273.6, | 85.1, | 213.0, | 9.1); | ( 565005.6, | 4191283.6, | 71.6, | 213.0, | 9.1); |
| ( 565015.6, | 4191283.6, | 72.0, | 213.0, | 9.1); | ( 565115.6, | 4191283.6, | 73.9, | 213.0, | 9.1); |

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    ( 565125.6, 4191283.6,      73.9,     213.0,       9.1);         ( 565135.6, 4191283.6,      74.0,     213.0,       9.1);
    ( 565145.6, 4191283.6,      74.3,     213.0,       9.1);         ( 565155.6, 4191283.6,      74.6,     213.0,       9.1);
    ( 565165.6, 4191283.6,      75.0,     213.0,       9.1);         ( 565175.6, 4191283.6,      75.3,     213.0,       9.1);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 151
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

    ( 565185.6, 4191283.6,      75.6,     213.0,       9.1);         ( 565205.6, 4191283.6,      76.3,     213.0,       9.1);
    ( 565215.6, 4191283.6,      76.6,     213.0,       9.1);         ( 565225.6, 4191283.6,      77.0,     213.0,       9.1);
    ( 565235.6, 4191283.6,      77.3,     213.0,       9.1);         ( 565245.6, 4191283.6,      77.6,     213.0,       9.1);
    ( 565255.6, 4191283.6,      77.9,     213.0,       9.1);         ( 565265.6, 4191283.6,      77.9,     213.0,       9.1);
    ( 565285.6, 4191283.6,      78.1,     213.0,       9.1);         ( 565295.6, 4191283.6,      78.4,     213.0,       9.1);
    ( 565305.6, 4191283.6,      78.7,     213.0,       9.1);         ( 565315.6, 4191283.6,      79.1,     213.0,       9.1);
    ( 565005.6, 4191293.6,      71.8,     213.0,       9.1);         ( 565015.6, 4191293.6,      72.1,     213.0,       9.1);
    ( 565145.6, 4191293.6,      74.6,     213.0,       9.1);         ( 565155.6, 4191293.6,      75.0,     213.0,       9.1);
    ( 565165.6, 4191293.6,      75.3,     213.0,       9.1);         ( 565175.6, 4191293.6,      75.5,     213.0,       9.1);
    ( 565185.6, 4191293.6,      75.8,     213.0,       9.1);         ( 565205.6, 4191293.6,      76.4,     213.0,       9.1);
    ( 565215.6, 4191293.6,      76.7,     213.0,       9.1);         ( 565225.6, 4191293.6,      77.1,     213.0,       9.1);
    ( 565235.6, 4191293.6,      77.4,     213.0,       9.1);         ( 565245.6, 4191293.6,      77.7,     213.0,       9.1);
    ( 565255.6, 4191293.6,      78.0,     213.0,       9.1);         ( 565265.6, 4191293.6,      78.1,     213.0,       9.1);
    ( 565285.6, 4191293.6,      78.3,     213.0,       9.1);         ( 565295.6, 4191293.6,      78.6,     213.0,       9.1);
    ( 565305.6, 4191293.6,      79.0,     213.0,       9.1);         ( 565315.6, 4191293.6,      79.4,     213.0,       9.1);
    ( 565005.6, 4191303.6,      71.9,     213.0,       9.1);         ( 565015.6, 4191303.6,      72.1,     213.0,       9.1);
    ( 565085.6, 4191303.6,      74.2,     213.0,       9.1);         ( 565095.6, 4191303.6,      74.4,     213.0,       9.1);
    ( 565105.6, 4191303.6,      74.6,     213.0,       9.1);         ( 565115.6, 4191303.6,      74.6,     213.0,       9.1);
    ( 565205.6, 4191303.6,      76.4,     213.0,       9.1);         ( 565215.6, 4191303.6,      76.7,     213.0,       9.1);
    ( 565225.6, 4191303.6,      77.1,     213.0,       9.1);         ( 565235.6, 4191303.6,      77.4,     213.0,       9.1);
    ( 565245.6, 4191303.6,      77.7,     213.0,       9.1);         ( 565255.6, 4191303.6,      78.0,     213.0,       9.1);
    ( 565265.6, 4191303.6,      78.2,     213.0,       9.1);         ( 565275.6, 4191303.6,      78.4,     213.0,       9.1);
    ( 565285.6, 4191303.6,      78.6,     213.0,       9.1);         ( 565295.6, 4191303.6,      79.0,     213.0,       9.1);
    ( 565305.6, 4191303.6,      79.3,     213.0,       9.1);         ( 565315.6, 4191303.6,      79.7,     213.0,       9.1);
    ( 565005.6, 4191313.6,      72.0,     213.0,       9.1);         ( 565015.6, 4191313.6,      72.1,     213.0,       9.1);
    ( 565085.6, 4191313.6,      74.4,     213.0,       9.1);         ( 565095.6, 4191313.6,      74.7,     213.0,       9.1);
    ( 565105.6, 4191313.6,      74.9,     213.0,       9.1);         ( 565115.6, 4191313.6,      74.9,     213.0,       9.1);
    ( 565275.6, 4191313.6,      78.7,     213.0,       9.1);         ( 565285.6, 4191313.6,      79.0,     213.0,       9.1);
    ( 565295.6, 4191313.6,      79.3,     213.0,       9.1);         ( 565305.6, 4191313.6,      79.6,     213.0,       9.1);
    ( 565315.6, 4191313.6,      80.0,     213.0,       9.1);         ( 565005.6, 4191323.6,      72.2,     213.0,       9.1);
    ( 565235.6, 4191333.6,      78.0,     213.0,       9.1);         ( 565245.6, 4191333.6,      78.3,     213.0,       9.1);
    ( 565255.6, 4191333.6,      78.6,     213.0,       9.1);         ( 565265.6, 4191333.6,      78.8,     213.0,       9.1);
    ( 565275.6, 4191333.6,      78.9,     213.0,       9.1);         ( 565285.6, 4191333.6,      79.1,     213.0,       9.1);
    ( 565295.6, 4191333.6,      79.4,     213.0,       9.1);         ( 565305.6, 4191333.6,      79.7,     213.0,       9.1);
    ( 564995.6, 4191343.6,      72.9,     213.0,       9.1);         ( 565005.6, 4191343.6,      72.9,     213.0,       9.1);
    ( 565235.6, 4191343.6,      78.3,     213.0,       9.1);         ( 565245.6, 4191343.6,      78.6,     213.0,       9.1);
    ( 565255.6, 4191343.6,      78.9,     213.0,       9.1);         ( 565265.6, 4191343.6,      78.9,     213.0,       9.1);
    ( 565275.6, 4191343.6,      79.0,     213.0,       9.1);         ( 565285.6, 4191343.6,      79.1,     213.0,       9.1);
    ( 565295.6, 4191343.6,      79.4,     213.0,       9.1);         ( 565305.6, 4191343.6,      79.7,     213.0,       9.1);
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    ( 565315.6, 4191343.6,      80.1,     213.0,       9.1);         ( 565325.6, 4191343.6,      80.4,     213.0,       9.1);
    ( 565335.6, 4191343.6,      80.7,     213.0,       9.1);         ( 565345.6, 4191343.6,      81.1,     213.0,       9.1);
    ( 564995.6, 4191353.6,      73.2,     213.0,       9.1);         ( 565005.6, 4191353.6,      73.2,     213.0,       9.1);
    ( 565015.6, 4191353.6,      73.3,     213.0,       9.1);         ( 565025.6, 4191353.6,      73.6,     213.0,       9.1);
    ( 565035.6, 4191353.6,      74.0,     213.0,       9.1);         ( 565235.6, 4191353.6,      78.5,     213.0,       9.1);
    ( 565245.6, 4191353.6,      78.8,     213.0,       9.1);         ( 565255.6, 4191353.6,      79.0,     213.0,       9.1);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 152
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                   (METERS)

    ( 565265.6, 4191353.6,      79.1,     213.0,       9.1);         ( 565275.6, 4191353.6,      79.2,     213.0,       9.1);
    ( 565285.6, 4191353.6,      79.3,     213.0,       9.1);         ( 565295.6, 4191353.6,      79.6,     213.0,       9.1);
    ( 565305.6, 4191353.6,      80.0,     213.0,       9.1);         ( 565315.6, 4191353.6,      80.3,     213.0,       9.1);
    ( 565325.6, 4191353.6,      80.6,     213.0,       9.1);         ( 565335.6, 4191353.6,      81.0,     213.0,       9.1);
    ( 565345.6, 4191353.6,      81.4,     213.0,       9.1);         ( 565355.6, 4191353.6,      82.0,     213.0,       9.1);
    ( 565365.6, 4191353.6,      82.5,     213.0,       9.1);         ( 565375.6, 4191353.6,      83.1,     213.0,       9.1);
    ( 565005.6, 4191363.6,      73.6,     213.0,       9.1);         ( 565015.6, 4191363.6,      73.6,     213.0,       9.1);
    ( 565025.6, 4191363.6,      74.0,     213.0,       9.1);         ( 565035.6, 4191363.6,      74.3,     213.0,       9.1);
    ( 565075.6, 4191363.6,      75.0,     213.0,       9.1);         ( 565085.6, 4191363.6,      75.2,     213.0,       9.1);
    ( 565095.6, 4191363.6,      75.4,     213.0,       9.1);         ( 565105.6, 4191363.6,      75.6,     213.0,       9.1);
    ( 565195.6, 4191363.6,      77.6,     213.0,       9.1);         ( 565205.6, 4191363.6,      78.0,     213.0,       9.1);
    ( 565215.6, 4191363.6,      78.3,     213.0,       9.1);         ( 565225.6, 4191363.6,      78.6,     213.0,       9.1);
    ( 565235.6, 4191363.6,      78.8,     213.0,       9.1);         ( 565245.6, 4191363.6,      78.9,     213.0,       9.1);
    ( 565255.6, 4191363.6,      79.0,     213.0,       9.1);         ( 565265.6, 4191363.6,      79.2,     213.0,       9.1);
    ( 565275.6, 4191363.6,      79.4,     213.0,       9.1);         ( 565285.6, 4191363.6,      79.6,     213.0,       9.1);
    ( 565295.6, 4191363.6,      80.0,     213.0,       9.1);         ( 565305.6, 4191363.6,      80.3,     213.0,       9.1);
    ( 565315.6, 4191363.6,      80.6,     213.0,       9.1);         ( 565325.6, 4191363.6,      81.0,     213.0,       9.1);
    ( 565335.6, 4191363.6,      81.3,     213.0,       9.1);         ( 565345.6, 4191363.6,      81.7,     213.0,       9.1);
    ( 565355.6, 4191363.6,      82.1,     213.0,       9.1);         ( 565365.6, 4191363.6,      82.6,     213.0,       9.1);
    ( 565375.6, 4191363.6,      83.1,     213.0,       9.1);         ( 565405.6, 4191363.6,      84.6,     213.0,       9.1);
    ( 565415.6, 4191363.6,      85.0,     213.0,       9.1);         ( 565425.6, 4191363.6,      85.3,     213.0,       9.1);
    ( 565075.6, 4191373.6,      75.1,     213.0,       9.1);         ( 565085.6, 4191373.6,      75.4,     213.0,       9.1);
    ( 565095.6, 4191373.6,      75.7,     213.0,       9.1);         ( 565105.6, 4191373.6,      76.0,     213.0,       9.1);
    ( 565195.6, 4191373.6,      78.0,     213.0,       9.1);         ( 565205.6, 4191373.6,      78.3,     213.0,       9.1);
    ( 565215.6, 4191373.6,      78.6,     213.0,       9.1);         ( 565225.6, 4191373.6,      78.9,     213.0,       9.1);
    ( 565235.6, 4191373.6,      78.9,     213.0,       9.1);         ( 565245.6, 4191373.6,      79.0,     213.0,       9.1);
    ( 565255.6, 4191373.6,      79.1,     213.0,       9.1);         ( 565265.6, 4191373.6,      79.4,     213.0,       9.1);
    ( 565275.6, 4191373.6,      79.7,     213.0,       9.1);         ( 565285.6, 4191373.6,      80.0,     213.0,       9.1);
    ( 565295.6, 4191373.6,      80.3,     213.0,       9.1);         ( 565305.6, 4191373.6,      80.6,     213.0,       9.1);
    ( 565315.6, 4191373.6,      81.0,     213.0,       9.1);         ( 565325.6, 4191373.6,      81.3,     213.0,       9.1);
    ( 565335.6, 4191373.6,      81.6,     213.0,       9.1);         ( 565345.6, 4191373.6,      82.0,     213.0,       9.1);
    ( 565355.6, 4191373.6,      82.3,     213.0,       9.1);         ( 565365.6, 4191373.6,      82.7,     213.0,       9.1);
    ( 565375.6, 4191373.6,      83.1,     213.0,       9.1);         ( 565405.6, 4191373.6,      85.0,     213.0,       9.1);
    ( 565415.6, 4191373.6,      85.3,     213.0,       9.1);         ( 565425.6, 4191373.6,      85.6,     213.0,       9.1);
    ( 565465.6, 4191373.6,      87.1,     213.0,       9.1);         ( 565475.6, 4191373.6,      87.4,     213.0,       9.1);
    ( 565485.6, 4191373.6,      87.7,     213.0,       9.1);         ( 565495.6, 4191373.6,      88.1,     213.0,       9.1);
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    ( 565505.6, 4191373.6,      88.8,     213.0,       9.1);         ( 565515.6, 4191373.6,      89.4,     213.0,       9.1);
    ( 565525.6, 4191373.6,      90.0,     213.0,       9.1);         ( 565195.6, 4191383.6,      78.3,     213.0,       9.1);
    ( 565205.6, 4191383.6,      78.6,     213.0,       9.1);         ( 565215.6, 4191383.6,      79.0,     213.0,       9.1);
    ( 565225.6, 4191383.6,      79.3,     213.0,       9.1);         ( 565235.6, 4191383.6,      79.3,     213.0,       9.1);
    ( 565245.6, 4191383.6,      79.4,     213.0,       9.1);         ( 565255.6, 4191383.6,      79.5,     213.0,       9.1);
    ( 565265.6, 4191383.6,      79.8,     213.0,       9.1);         ( 565275.6, 4191383.6,      80.0,     213.0,       9.1);
    ( 565285.6, 4191383.6,      80.3,     213.0,       9.1);         ( 565295.6, 4191383.6,      80.6,     213.0,       9.1);
    ( 565305.6, 4191383.6,      81.0,     213.0,       9.1);         ( 565315.6, 4191383.6,      81.3,     213.0,       9.1);
    ( 565325.6, 4191383.6,      81.6,     213.0,       9.1);         ( 565335.6, 4191383.6,      82.0,     213.0,       9.1);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                                  ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                           ***        14:10:30
                                                                                                                            PAGE 153
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                   (METERS)

    ( 565345.6, 4191383.6,      82.3,     213.0,       9.1);         ( 565355.6, 4191383.6,      82.6,     213.0,       9.1);
    ( 565365.6, 4191383.6,      83.0,     213.0,       9.1);         ( 565395.6, 4191383.6,      84.7,     213.0,       9.1);
    ( 565405.6, 4191383.6,      85.3,     213.0,       9.1);         ( 565415.6, 4191383.6,      85.6,     213.0,       9.1);
    ( 565425.6, 4191383.6,      86.0,     213.0,       9.1);         ( 565465.6, 4191383.6,      87.3,     213.0,       9.1);
    ( 565475.6, 4191383.6,      87.6,     213.0,       9.1);         ( 565485.6, 4191383.6,      88.0,     213.0,       9.1);
    ( 565495.6, 4191383.6,      88.4,     213.0,       9.1);         ( 565505.6, 4191383.6,      89.0,     213.0,       9.1);
    ( 565515.6, 4191383.6,      89.5,     213.0,       9.1);         ( 565525.6, 4191383.6,      90.1,     213.0,       9.1);
    ( 565535.6, 4191383.6,      90.4,     213.0,       9.1);         ( 565545.6, 4191383.6,      90.7,     213.0,       9.1);
    ( 565555.6, 4191383.6,      91.1,     213.0,       9.1);         ( 565565.6, 4191383.6,      91.5,     213.0,       9.1);
    ( 565575.6, 4191383.6,      91.9,     213.0,       9.1);         ( 565195.6, 4191393.6,      78.6,     213.0,       9.1);
    ( 565205.6, 4191393.6,      79.0,     213.0,       9.1);         ( 565215.6, 4191393.6,      79.3,     213.0,       9.1);
    ( 565225.6, 4191393.6,      79.6,     213.0,       9.1);         ( 565235.6, 4191393.6,      79.8,     213.0,       9.1);
    ( 565245.6, 4191393.6,      80.0,     213.0,       9.1);         ( 565255.6, 4191393.6,      80.2,     213.0,       9.1);
    ( 565265.6, 4191393.6,      80.3,     213.0,       9.1);         ( 565275.6, 4191393.6,      80.5,     213.0,       9.1);
    ( 565285.6, 4191393.6,      80.6,     213.0,       9.1);         ( 565295.6, 4191393.6,      81.0,     213.0,       9.1);
    ( 565305.6, 4191393.6,      81.3,     213.0,       9.1);         ( 565315.6, 4191393.6,      81.6,     213.0,       9.1);
    ( 565325.6, 4191393.6,      82.0,     213.0,       9.1);         ( 565335.6, 4191393.6,      82.3,     213.0,       9.1);
    ( 565345.6, 4191393.6,      82.6,     213.0,       9.1);         ( 565355.6, 4191393.6,      83.0,     213.0,       9.1);
    ( 565365.6, 4191393.6,      83.3,     213.0,       9.1);         ( 565395.6, 4191393.6,      85.0,     213.0,       9.1);
    ( 565405.6, 4191393.6,      85.6,     213.0,       9.1);         ( 565415.6, 4191393.6,      86.0,     213.0,       9.1);
    ( 565425.6, 4191393.6,      86.3,     213.0,       9.1);         ( 565465.6, 4191393.6,      87.6,     213.0,       9.1);
    ( 565475.6, 4191393.6,      88.0,     213.0,       9.1);         ( 565485.6, 4191393.6,      88.3,     213.0,       9.1);
    ( 565495.6, 4191393.6,      88.7,     213.0,       9.1);         ( 565505.6, 4191393.6,      89.1,     213.0,       9.1);
    ( 565515.6, 4191393.6,      89.6,     213.0,       9.1);         ( 565525.6, 4191393.6,      90.1,     213.0,       9.1);
    ( 565535.6, 4191393.6,      90.4,     213.0,       9.1);         ( 565545.6, 4191393.6,      90.7,     213.0,       9.1);
    ( 565555.6, 4191393.6,      91.1,     213.0,       9.1);         ( 565565.6, 4191393.6,      91.6,     213.0,       9.1);
    ( 565575.6, 4191393.6,      92.2,     213.0,       9.1);         ( 565225.6, 4191403.6,      80.0,     213.0,       9.1);
    ( 565235.6, 4191403.6,      80.3,     213.0,       9.1);         ( 565245.6, 4191403.6,      80.6,     213.0,       9.1);
    ( 565255.6, 4191403.6,      80.8,     213.0,       9.1);         ( 565265.6, 4191403.6,      80.8,     213.0,       9.1);
    ( 565275.6, 4191403.6,      80.9,     213.0,       9.1);         ( 565285.6, 4191403.6,      81.0,     213.0,       9.1);
    ( 565295.6, 4191403.6,      81.3,     213.0,       9.1);         ( 565305.6, 4191403.6,      81.6,     213.0,       9.1);
    ( 565315.6, 4191403.6,      82.0,     213.0,       9.1);         ( 565325.6, 4191403.6,      82.3,     213.0,       9.1);
    ( 565335.6, 4191403.6,      82.6,     213.0,       9.1);         ( 565345.6, 4191403.6,      83.0,     213.0,       9.1);
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    ( 565355.6, 4191403.6,      83.3,     213.0,       9.1);         ( 565365.6, 4191403.6,      83.6,     213.0,       9.1);
    ( 565395.6, 4191403.6,      85.4,     213.0,       9.1);         ( 565405.6, 4191403.6,      86.0,     213.0,       9.1);
    ( 565415.6, 4191403.6,      86.3,     213.0,       9.1);         ( 565425.6, 4191403.6,      86.6,     213.0,       9.1);
    ( 565435.6, 4191403.6,      87.0,     213.0,       9.1);         ( 565465.6, 4191403.6,      88.0,     213.0,       9.1);
    ( 565565.6, 4191403.6,      91.8,     213.0,       9.1);         ( 565575.6, 4191403.6,      92.4,     213.0,       9.1);
    ( 565285.6, 4191413.6,      81.3,     213.0,       9.1);         ( 565295.6, 4191413.6,      81.6,     213.0,       9.1);
    ( 565305.6, 4191413.6,      82.0,     213.0,       9.1);         ( 565315.6, 4191413.6,      82.3,     213.0,       9.1);
    ( 565325.6, 4191413.6,      82.6,     213.0,       9.1);         ( 565335.6, 4191413.6,      83.0,     213.0,       9.1);
    ( 565345.6, 4191413.6,      83.3,     213.0,       9.1);         ( 565355.6, 4191413.6,      83.7,     213.0,       9.1);
    ( 565365.6, 4191413.6,      84.2,     213.0,       9.1);         ( 565395.6, 4191413.6,      85.6,     213.0,       9.1);
    ( 565405.6, 4191413.6,      86.1,     213.0,       9.1);         ( 565415.6, 4191413.6,      86.4,     213.0,       9.1);
    ( 565425.6, 4191413.6,      86.7,     213.0,       9.1);         ( 565435.6, 4191413.6,      87.1,     213.0,       9.1);
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                     PAGE 154
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                (METERS)

    ( 565565.6, 4191413.6,      92.0,     213.0,       9.1);         ( 565575.6, 4191413.6,      92.5,     213.0,       9.1);
    ( 565355.6, 4191423.6,      84.2,     213.0,       9.1);         ( 565365.6, 4191423.6,      84.7,     213.0,       9.1);
    ( 565395.6, 4191423.6,      85.8,     213.0,       9.1);         ( 565405.6, 4191423.6,      86.1,     213.0,       9.1);
    ( 565415.6, 4191423.6,      86.4,     213.0,       9.1);         ( 565425.6, 4191423.6,      86.7,     213.0,       9.1);
    ( 565435.6, 4191423.6,      87.1,     213.0,       9.1);         ( 565505.6, 4191423.6,      89.4,     213.0,       9.1);
    ( 565515.6, 4191423.6,      89.7,     213.0,       9.1);         ( 565525.6, 4191423.6,      90.1,     213.0,       9.1);
    ( 565535.6, 4191423.6,      90.6,     213.0,       9.1);         ( 565545.6, 4191423.6,      91.2,     213.0,       9.1);
    ( 565555.6, 4191423.6,      91.7,     213.0,       9.1);         ( 565565.6, 4191423.6,      92.1,     213.0,       9.1);
    ( 565575.6, 4191423.6,      92.6,     213.0,       9.1);         ( 565395.6, 4191433.6,      86.0,     213.0,       9.1);
    ( 565405.6, 4191433.6,      86.1,     213.0,       9.1);         ( 565415.6, 4191433.6,      86.4,     213.0,       9.1);
    ( 565425.6, 4191433.6,      86.7,     213.0,       9.1);         ( 565435.6, 4191433.6,      87.1,     213.0,       9.1);
    ( 565455.6, 4191433.6,      88.4,     213.0,       9.1);         ( 565465.6, 4191433.6,      88.9,     213.0,       9.1);
    ( 565475.6, 4191433.6,      88.9,     213.0,       9.1);         ( 565485.6, 4191433.6,      89.0,     213.0,       9.1);
    ( 565495.6, 4191433.6,      89.1,     213.0,       9.1);         ( 565505.6, 4191433.6,      89.4,     213.0,       9.1);
    ( 565515.6, 4191433.6,      89.7,     213.0,       9.1);         ( 565525.6, 4191433.6,      90.1,     213.0,       9.1);
    ( 565535.6, 4191433.6,      90.8,     213.0,       9.1);         ( 565545.6, 4191433.6,      91.4,     213.0,       9.1);
    ( 565555.6, 4191433.6,      92.0,     213.0,       9.1);         ( 565565.6, 4191433.6,      92.3,     213.0,       9.1);
    ( 565575.6, 4191433.6,      92.7,     213.0,       9.1);         ( 565455.6, 4191443.6,      88.5,     213.0,       9.1);
    ( 565465.6, 4191443.6,      89.0,     213.0,       9.1);         ( 565475.6, 4191443.6,      89.1,     213.0,       9.1);
    ( 565485.6, 4191443.6,      89.2,     213.0,       9.1);         ( 565495.6, 4191443.6,      89.3,     213.0,       9.1);
    ( 565505.6, 4191443.6,      89.6,     213.0,       9.1);         ( 565515.6, 4191443.6,      90.0,     213.0,       9.1);
    ( 565525.6, 4191443.6,      90.4,     213.0,       9.1);         ( 565535.6, 4191443.6,      91.0,     213.0,       9.1);
    ( 565545.6, 4191443.6,      91.5,     213.0,       9.1);         ( 565555.6, 4191443.6,      92.1,     213.0,       9.1);
    ( 565565.6, 4191443.6,      92.5,     213.0,       9.1);         ( 565575.6, 4191443.6,      92.9,     213.0,       9.1);
    ( 565515.6, 4191453.6,      90.3,     213.0,       9.1);         ( 565525.6, 4191453.6,      90.7,     213.0,       9.1);
    ( 565535.6, 4191453.6,      91.1,     213.0,       9.1);         ( 565545.6, 4191453.6,      91.6,     213.0,       9.1);
    ( 565555.6, 4191453.6,      92.1,     213.0,       9.1);         ( 565565.6, 4191453.6,      92.6,     213.0,       9.1);
    ( 565575.6, 4191453.6,      93.2,     213.0,       9.1);
```

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER; WITHIN OPENPIT; OR BEYOND 80KM FOR FASTAREA/FASTALL

| SOURCE ID | - - RECEPTOR LOCATION - - XR (METERS) | YR (METERS) | DISTANCE (METERS) |
|---|---|---|---|
| L0000001 | 564965.6 | 4191083.6 | 0.53 |
| L0000002 | 564975.6 | 4191083.6 | -1.27 |
| L0000003 | 564995.6 | 4191063.6 | 0.97 |
| L0000003 | 564985.6 | 4191083.6 | -2.60 |
| L0000003 | 564995.6 | 4191083.6 | -1.72 |
| L0000004 | 564995.6 | 4191083.6 | -3.25 |
| L0000004 | 565005.6 | 4191083.6 | -4.43 |
| L0000005 | 565005.6 | 4191083.6 | -3.08 |
| L0000005 | 565015.6 | 4191083.6 | -7.11 |
| L0000006 | 565015.6 | 4191083.6 | -2.11 |
| L0000007 | 565035.6 | 4191093.6 | -1.62 |
| L0000007 | 565035.6 | 4191093.6 | -1.62 |
| L0000007 | 565035.6 | 4191093.6 | -1.62 |
| L0000008 | 565045.6 | 4191093.6 | -3.14 |
| L0000008 | 565045.6 | 4191093.6 | -3.14 |
| L0000008 | 565045.6 | 4191093.6 | -3.14 |
| L0000013 | 565105.6 | 4191083.6 | 0.20 |
| L0000013 | 565105.6 | 4191083.6 | 0.20 |
| L0000013 | 565105.6 | 4191083.6 | 0.20 |
| L0000016 | 565145.6 | 4191113.6 | 0.79 |
| L0000016 | 565145.6 | 4191113.6 | 0.79 |
| L0000016 | 565145.6 | 4191113.6 | 0.79 |
| L0000017 | 565155.6 | 4191113.6 | -1.17 |
| L0000017 | 565155.6 | 4191113.6 | -1.17 |
| L0000017 | 565155.6 | 4191113.6 | -1.17 |
| L0000018 | 565165.6 | 4191113.6 | -2.82 |
| L0000018 | 565175.6 | 4191113.6 | 0.26 |
| L0000018 | 565165.6 | 4191113.6 | -2.82 |
| L0000018 | 565175.6 | 4191113.6 | 0.26 |
| L0000018 | 565165.6 | 4191113.6 | -2.82 |
| L0000018 | 565175.6 | 4191113.6 | 0.26 |
| L0000019 | 565175.6 | 4191113.6 | -3.94 |
| L0000019 | 565185.6 | 4191113.6 | -2.33 |
| L0000019 | 565175.6 | 4191113.6 | -3.94 |
| L0000019 | 565185.6 | 4191113.6 | -2.33 |
| L0000019 | 565175.6 | 4191113.6 | -3.94 |
| L0000019 | 565185.6 | 4191113.6 | -2.33 |
| L0000020 | 565185.6 | 4191113.6 | -4.32 |

| | | | |
|---|---|---|---|
| L0000020 | 565195.6 | 4191113.6 | -4.91 |
| L0000020 | 565185.6 | 4191113.6 | -4.32 |

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER; WITHIN OPENPIT; OR BEYOND 80KM FOR FASTAREA/FASTALL

| SOURCE ID | - - RECEPTOR LOCATION - - XR (METERS) | YR (METERS) | DISTANCE (METERS) |
|---|---|---|---|
| L0000020 | 565195.6 | 4191113.6 | -4.91 |
| L0000020 | 565185.6 | 4191113.6 | -4.32 |
| L0000020 | 565195.6 | 4191113.6 | -4.91 |
| L0000021 | 565195.6 | 4191113.6 | -3.85 |
| L0000021 | 565205.6 | 4191113.6 | -7.48 |
| L0000021 | 565195.6 | 4191113.6 | -3.85 |
| L0000021 | 565205.6 | 4191113.6 | -7.48 |
| L0000021 | 565195.6 | 4191113.6 | -3.85 |
| L0000021 | 565205.6 | 4191113.6 | -7.48 |
| L0000022 | 565205.6 | 4191113.6 | -2.66 |
| L0000022 | 565205.6 | 4191113.6 | -2.66 |
| L0000022 | 565205.6 | 4191113.6 | -2.66 |
| L0000024 | 565235.6 | 4191103.6 | 0.39 |
| L0000024 | 565245.6 | 4191123.6 | -1.30 |
| L0000024 | 565235.6 | 4191103.6 | 0.39 |
| L0000024 | 565245.6 | 4191123.6 | -1.30 |
| L0000024 | 565235.6 | 4191103.6 | 0.39 |
| L0000024 | 565245.6 | 4191123.6 | -1.30 |
| L0000025 | 565245.6 | 4191123.6 | -4.47 |
| L0000025 | 565245.6 | 4191123.6 | -4.47 |
| L0000025 | 565245.6 | 4191123.6 | -4.47 |
| L0000029 | 565295.6 | 4191113.6 | 0.43 |
| L0000029 | 565295.6 | 4191113.6 | 0.43 |
| L0000029 | 565295.6 | 4191113.6 | 0.43 |
| L0000032 | 565335.6 | 4191123.6 | -3.22 |
| L0000032 | 565335.6 | 4191123.6 | -3.22 |
| L0000032 | 565335.6 | 4191123.6 | -3.22 |
| L0000033 | 565345.6 | 4191123.6 | -1.53 |
| L0000033 | 565345.6 | 4191123.6 | -1.53 |
| L0000033 | 565345.6 | 4191123.6 | -1.53 |
| L0000034 | 565355.6 | 4191123.6 | 0.53 |
| L0000034 | 565355.6 | 4191123.6 | 0.53 |
| L0000034 | 565355.6 | 4191123.6 | 0.53 |
| L0000057 | 565295.6 | 4191233.6 | -3.87 |
| L0000057 | 565295.6 | 4191233.6 | -3.87 |
| L0000057 | 565295.6 | 4191233.6 | -3.87 |
| L0000058 | 565285.6 | 4191233.6 | -2.65 |
| L0000058 | 565295.6 | 4191233.6 | -0.22 |

| | | | |
|---|---|---|---|
| L0000058 | 565285.6 | 4191233.6 | -2.65 |
| L0000058 | 565295.6 | 4191233.6 | -0.22 |

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER; WITHIN OPENPIT; OR BEYOND 80KM FOR FASTAREA/FASTALL

| SOURCE ID | - - RECEPTOR LOCATION - - XR (METERS) | YR (METERS) | DISTANCE (METERS) |
|---|---|---|---|
| L0000058 | 565285.6 | 4191233.6 | -2.65 |
| L0000058 | 565295.6 | 4191233.6 | -0.22 |
| L0000059 | 565275.6 | 4191233.6 | -0.85 |
| L0000059 | 565275.6 | 4191233.6 | -0.85 |
| L0000059 | 565275.6 | 4191233.6 | -0.85 |
| L0000063 | 565225.6 | 4191223.6 | -2.60 |
| L0000063 | 565225.6 | 4191223.6 | -2.60 |
| L0000063 | 565225.6 | 4191223.6 | -2.60 |
| L0000064 | 565215.6 | 4191223.6 | -1.21 |
| L0000064 | 565215.6 | 4191223.6 | -1.21 |
| L0000064 | 565215.6 | 4191223.6 | -1.21 |
| L0000065 | 565195.6 | 4191213.6 | -2.12 |
| L0000065 | 565195.6 | 4191213.6 | -2.12 |
| L0000065 | 565195.6 | 4191213.6 | -2.12 |
| L0000066 | 565185.6 | 4191213.6 | -3.11 |
| L0000066 | 565195.6 | 4191213.6 | -6.97 |
| L0000066 | 565185.6 | 4191213.6 | -3.11 |
| L0000066 | 565195.6 | 4191213.6 | -6.97 |
| L0000066 | 565185.6 | 4191213.6 | -3.11 |
| L0000066 | 565195.6 | 4191213.6 | -6.97 |
| L0000067 | 565175.6 | 4191213.6 | -3.38 |
| L0000067 | 565185.6 | 4191213.6 | -4.41 |
| L0000067 | 565175.6 | 4191213.6 | -3.38 |
| L0000067 | 565185.6 | 4191213.6 | -4.41 |
| L0000067 | 565175.6 | 4191213.6 | -3.38 |
| L0000067 | 565185.6 | 4191213.6 | -4.41 |
| L0000068 | 565165.6 | 4191193.6 | 0.44 |
| L0000068 | 565165.6 | 4191213.6 | -2.87 |
| L0000068 | 565175.6 | 4191213.6 | -1.81 |
| L0000068 | 565165.6 | 4191193.6 | 0.44 |
| L0000068 | 565165.6 | 4191213.6 | -2.87 |
| L0000068 | 565175.6 | 4191213.6 | -1.81 |
| L0000068 | 565165.6 | 4191193.6 | 0.44 |
| L0000068 | 565165.6 | 4191213.6 | -2.87 |
| L0000068 | 565175.6 | 4191213.6 | -1.81 |
| L0000069 | 565165.6 | 4191193.6 | 0.65 |
| L0000069 | 565155.6 | 4191213.6 | -1.68 |
| L0000069 | 565165.6 | 4191213.6 | 0.81 |

| | | | |
|---|---|---|---|
| L0000069 | 565165.6 | 4191193.6 | 0.65 |
| L0000069 | 565155.6 | 4191213.6 | -1.68 |

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER; WITHIN OPENPIT; OR BEYOND 80KM FOR FASTAREA/FASTALL

| SOURCE ID | - - RECEPTOR LOCATION - - XR (METERS) | YR (METERS) | DISTANCE (METERS) |
|---|---|---|---|
| L0000069 | 565165.6 | 4191213.6 | 0.81 |
| L0000069 | 565165.6 | 4191193.6 | 0.65 |
| L0000069 | 565155.6 | 4191213.6 | -1.68 |
| L0000069 | 565165.6 | 4191213.6 | 0.81 |
| L0000070 | 565145.6 | 4191213.6 | -0.01 |
| L0000070 | 565145.6 | 4191213.6 | -0.01 |
| L0000070 | 565145.6 | 4191213.6 | -0.01 |
| L0000075 | 565085.6 | 4191203.6 | -0.57 |
| L0000075 | 565085.6 | 4191203.6 | -0.57 |
| L0000075 | 565085.6 | 4191203.6 | -0.57 |
| L0000079 | 565035.6 | 4191173.6 | -0.32 |
| L0000079 | 565045.6 | 4191173.6 | 0.81 |
| L0000079 | 565035.6 | 4191173.6 | -0.32 |
| L0000079 | 565045.6 | 4191173.6 | 0.81 |
| L0000079 | 565035.6 | 4191173.6 | -0.32 |
| L0000079 | 565045.6 | 4191173.6 | 0.81 |
| L0000080 | 565025.6 | 4191173.6 | -2.61 |
| L0000080 | 565035.6 | 4191173.6 | 0.37 |
| L0000080 | 565025.6 | 4191173.6 | -2.61 |
| L0000080 | 565035.6 | 4191173.6 | 0.37 |
| L0000080 | 565025.6 | 4191173.6 | -2.61 |
| L0000080 | 565035.6 | 4191173.6 | 0.37 |
| L0000081 | 565025.6 | 4191173.6 | 0.49 |
| L0000081 | 565025.6 | 4191173.6 | 0.49 |
| L0000081 | 565025.6 | 4191173.6 | 0.49 |
| L0000082 | 564995.6 | 4191183.6 | -2.75 |
| L0000083 | 564985.6 | 4191183.6 | -3.07 |
| L0000083 | 564995.6 | 4191183.6 | -4.54 |
| L0000084 | 564975.6 | 4191183.6 | -2.62 |
| L0000084 | 564985.6 | 4191183.6 | -1.95 |
| L0000085 | 564965.6 | 4191183.6 | -1.51 |
| L0000085 | 564975.6 | 4191183.6 | 0.65 |

```
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                     PAGE 159
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
                                                          (1=YES; 0=NO)

          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1

              NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.


                                   *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
                                                          (METERS/SEC)

                                        1.54,   3.09,   5.14,   8.23,  10.80,
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                     PAGE 160
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                  *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

  Surface file:   ..\met data-1.8m\724930\724930.SFC                                          Met Version:  14134
  Profile file:   ..\met data-1.8m\724930\724930.PFL
  Surface format: FREE
  Profile format: FREE
  Surface station no.:    23230                  Upper air station no.:    23230
                 Name: OAKLAND/WSO_AP                              Name: OAKLAND/WSO_AP
                 Year:   2009                                      Year:   2009

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS   WD     HT  REF TA     HT
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
09 01 01   1 01  -17.2  0.303 -9.000 -9.000 -999.  401.    147.2  0.63   0.86   1.00    2.36   81.   10.0  282.5    2.0
09 01 01   1 02  -21.8  0.383 -9.000 -9.000 -999.  569.    234.6  0.63   0.86   1.00    2.86   68.   10.0  282.0    2.0
09 01 01   1 03  -26.3  0.460 -9.000 -9.000 -999.  749.    337.1  0.63   0.86   1.00    3.36   84.   10.0  280.9    2.0
09 01 01   1 04  -15.4  0.270 -9.000 -9.000 -999.  368.    116.1  0.47   0.86   1.00    2.36   53.   10.0  280.9    2.0
09 01 01   1 05  -26.3  0.460 -9.000 -9.000 -999.  749.    336.3  0.63   0.86   1.00    3.36   73.   10.0  280.4    2.0
09 01 01   1 06  -21.9  0.383 -9.000 -9.000 -999.  573.    232.9  0.63   0.86   1.00    2.86   82.   10.0  280.4    2.0
09 01 01   1 07  -22.0  0.383 -9.000 -9.000 -999.  569.    232.5  0.63   0.86   1.00    2.86   95.   10.0  279.9    2.0
09 01 01   1 08  -11.2  0.196 -9.000 -9.000 -999.  238.     60.6  0.63   0.86   0.76    1.76   73.   10.0  279.9    2.0
09 01 01   1 09   -2.2 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.45   0.86   0.39    0.00    0.   10.0  280.4    2.0
09 01 01   1 10    6.8  0.266  0.264  0.016   98.  329.   -250.8  0.63   0.86   0.27    1.76   91.   10.0  280.9    2.0
09 01 01   1 11   15.5 -9.000 -9.000 -9.000  177. -999. -99999.0  0.45   0.86   0.22    0.00    0.   10.0  282.0    2.0
09 01 01   1 12   96.1  0.393  1.019  0.014  401.  591.    -57.4  0.22   0.86   0.21    3.36  266.   10.0  281.4    2.0
09 01 01   1 13  102.5  0.395  1.092  0.014  462.  595.    -54.4  0.22   0.86   0.20    3.36  283.   10.0  282.0    2.0
09 01 01   1 14   89.9  0.297  1.066  0.015  489.  394.    -26.5  0.22   0.86   0.21    2.36  249.   10.0  282.0    2.0
09 01 01   1 15   62.1  0.383  0.954  0.014  507.  569.    -82.1  0.22   0.86   0.24    3.36  242.   10.0  282.5    2.0
09 01 01   1 16   23.1  0.665  0.690  0.006  513. 1300.  -1150.4  0.52   0.86   0.33    4.86  304.   10.0  282.5    2.0
09 01 01   1 17  -37.0  0.486 -9.000 -9.000 -999.  846.    280.6  0.22   0.86   0.56    4.86  291.   10.0  281.4    2.0
09 01 01   1 18  -52.2  0.480 -9.000 -9.000 -999.  799.    191.9  0.52   0.86   1.00    3.86  307.   10.0  280.9    2.0
09 01 01   1 19  -25.6  0.224 -9.000 -9.000 -999.  327.     39.8  0.52   0.86   1.00    2.36  334.   10.0  280.4    2.0
09 01 01   1 20  -11.1  0.119 -9.000 -9.000 -999.  115.     13.8  0.52   0.86   1.00    1.76  317.   10.0  280.4    2.0
09 01 01   1 21  -10.3  0.119 -9.000 -9.000 -999.   98.     14.7  0.52   0.86   1.00    1.76  320.   10.0  280.4    2.0
09 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.45   0.86   1.00    0.00    0.   10.0  280.9    2.0
09 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.45   0.86   1.00    0.00    0.   10.0  281.4    2.0
09 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.45   0.86   1.00    0.00    0.   10.0  281.4    2.0


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
09 01 01 01   10.0 1   81.    2.36   282.6   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
```

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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                    PAGE 176
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                         *** THE PERIOD ( 43872 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: ONSITE   ***
                             INCLUDING SOURCE(S):     PAREA1      ,

                                        *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                   ** CONC OF OTHER    IN MICROGRAMS/M**3                          **
```

| X-COORD (M) | Y-COORD (M) | CONC | X-COORD (M) | Y-COORD (M) | CONC | |
|---|---|---|---|---|---|---|
| 565025.64 | 4191113.57 | 0.21549 | 565035.64 | 4191113.57 | 0.22834 | |
| 565045.64 | 4191113.57 | 0.24251 | 565055.64 | 4191113.57 | 0.25853 | |
| 565065.64 | 4191113.57 | 0.27621 | 565075.64 | 4191113.57 | 0.29581 | |
| 565125.64 | 4191113.57 | 0.43383 | 565135.64 | 4191113.57 | 0.47283 | |
| 565145.64 | 4191113.57 | 0.51640 | 565155.64 | 4191113.57 | 0.56606 | |
| 565165.64 | 4191113.57 | 0.62321 | 565175.64 | 4191113.57 | 0.69037 | |
| 565185.64 | 4191113.57 | 0.76817 | 565195.64 | 4191113.57 | 0.85881 | |
| 565205.64 | 4191113.57 | 0.96506 | 565295.64 | 4191113.57 | 4.19151 | |
| 565305.64 | 4191113.57 | 5.02703 | 565315.64 | 4191113.57 | 5.75786 | |
| 565325.64 | 4191113.57 | 6.31197 | 565335.64 | 4191113.57 | 6.73361 | |
| 565345.64 | 4191113.57 | 7.05515 | 565355.64 | 4191113.57 | 7.32600 | |
| 565365.64 | 4191113.57 | 7.50630 | 565375.64 | 4191113.57 | 7.59249 | |
| 565385.64 | 4191113.57 | 7.47544 | 565485.64 | 4191113.57 | 5.26533 | |
| 565495.64 | 4191113.57 | 4.88642 | 565505.64 | 4191113.57 | 4.51293 | |
| 565525.64 | 4191113.57 | 3.84398 | 565535.64 | 4191113.57 | 3.55698 | |
| 565545.64 | 4191113.57 | 3.29277 | 565555.64 | 4191113.57 | 3.05152 | |
| 565565.64 | 4191113.57 | 2.83210 | 565575.64 | 4191113.57 | 2.63166 | |
| 565585.64 | 4191113.57 | 2.44671 | 565595.64 | 4191113.57 | 2.27302 | |
| 565605.64 | 4191113.57 | 2.11470 | 565615.64 | 4191113.57 | 1.97190 | |
| 565645.64 | 4191113.57 | 1.62502 | 565655.64 | 4191113.57 | 1.52598 | |
| 565665.64 | 4191113.57 | 1.43485 | 565675.64 | 4191113.57 | 1.35125 | |
| 565685.64 | 4191113.57 | 1.27464 | 565695.64 | 4191113.57 | 1.20396 | |
| 565705.64 | 4191113.57 | 1.13859 | 565715.64 | 4191113.57 | 1.07797 | |
| 565025.64 | 4191123.57 | 0.21890 | 565035.64 | 4191123.57 | 0.23216 | |
| 565045.64 | 4191123.57 | 0.24683 | 565055.64 | 4191123.57 | 0.26340 | |
| 565065.64 | 4191123.57 | 0.28175 | 565125.64 | 4191123.57 | 0.44663 | |
| 565135.64 | 4191123.57 | 0.48839 | 565145.64 | 4191123.57 | 0.53580 | |
| 565155.64 | 4191123.57 | 0.59045 | 565165.64 | 4191123.57 | 0.65407 | |
| 565175.64 | 4191123.57 | 0.72902 | 565185.64 | 4191123.57 | 0.81725 | |
| 565195.64 | 4191123.57 | 0.92205 | 565205.64 | 4191123.57 | 1.04742 | |
| 565245.64 | 4191123.57 | 1.90752 | 565335.64 | 4191123.57 | 10.57710 | |
| 565345.64 | 4191123.57 | 10.77441 | 565355.64 | 4191123.57 | 10.87226 | ←--MEIR |
| 565365.64 | 4191123.57 | 10.86124 | 565375.64 | 4191123.57 | 10.73096 | |
| 565385.64 | 4191123.57 | 10.24653 | 565495.64 | 4191123.57 | 5.47652 | |
| 565525.64 | 4191123.57 | 4.15948 | 565535.64 | 4191123.57 | 3.81115 | |
| 565545.64 | 4191123.57 | 3.49778 | 565555.64 | 4191123.57 | 3.21696 | |
| 565565.64 | 4191123.57 | 2.96896 | 565575.64 | 4191123.57 | 2.74501 | |

| | | | | | |
|---|---|---|---|---|---|
| 565585.64 | 4191123.57 | 2.54077 | 565595.64 | 4191123.57 | 2.35070 |
| 565605.64 | 4191123.57 | 2.17937 | 565615.64 | 4191123.57 | 2.02637 |
| 565645.64 | 4191123.57 | 1.66136 | 565655.64 | 4191123.57 | 1.55569 |

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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                    PAGE 245
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                          *** THE PERIOD ( 43872 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: HAUL     ***
                              INCLUDING SOURCE(S):     L0000001    , L0000002    , L0000003    , L0000004    , L0000005    ,
               L0000006    , L0000007    , L0000008    , L0000009    , L0000010    , L0000011    , L0000012    , L0000013    ,
               L0000014    , L0000015    , L0000016    , L0000017    , L0000018    , L0000019    , L0000020    , L0000021    ,
               L0000022    , L0000023    , L0000024    , L0000025    , L0000026    , L0000027    , L0000028    ,  . . .      ,

                                       *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                   ** CONC OF OTHER    IN MICROGRAMS/M**3                          **
```

| X-COORD (M) | Y-COORD (M) | CONC | X-COORD (M) | Y-COORD (M) | CONC | |
|---|---|---|---|---|---|---|
| 565025.64 | 4191113.57 | 4.32446 | 565035.64 | 4191113.57 | 4.73723 | |
| 565045.64 | 4191113.57 | 5.15152 | 565055.64 | 4191113.57 | 5.53033 | |
| 565065.64 | 4191113.57 | 5.93404 | 565075.64 | 4191113.57 | 6.37137 | |
| 565125.64 | 4191113.57 | 9.17252 | 565135.64 | 4191113.57 | 9.86686 | |
| 565145.64 | 4191113.57 | 8.82474 | 565155.64 | 4191113.57 | 9.43146 | |
| 565165.64 | 4191113.57 | 10.15105 | 565175.64 | 4191113.57 | 8.39477 | |
| 565185.64 | 4191113.57 | 8.77466 | 565195.64 | 4191113.57 | 9.26204 | |
| 565205.64 | 4191113.57 | 9.86620 | 565295.64 | 4191113.57 | 10.91494 | |
| 565305.64 | 4191113.57 | 11.77921 | 565315.64 | 4191113.57 | 11.00656 | |
| 565325.64 | 4191113.57 | 10.26651 | 565335.64 | 4191113.57 | 9.58625 | |
| 565345.64 | 4191113.57 | 8.98031 | 565355.64 | 4191113.57 | 8.49249 | |
| 565365.64 | 4191113.57 | 8.05389 | 565375.64 | 4191113.57 | 7.64136 | |
| 565385.64 | 4191113.57 | 7.20707 | 565485.64 | 4191113.57 | 3.18435 | |
| 565495.64 | 4191113.57 | 2.90983 | 565505.64 | 4191113.57 | 2.66072 | |
| 565525.64 | 4191113.57 | 2.23153 | 565535.64 | 4191113.57 | 2.06010 | |
| 565545.64 | 4191113.57 | 1.90706 | 565555.64 | 4191113.57 | 1.76987 | |
| 565565.64 | 4191113.57 | 1.64665 | 565575.64 | 4191113.57 | 1.53528 | |
| 565585.64 | 4191113.57 | 1.43361 | 565595.64 | 4191113.57 | 1.33925 | |
| 565605.64 | 4191113.57 | 1.25331 | 565615.64 | 4191113.57 | 1.17551 | |
| 565645.64 | 4191113.57 | 0.98413 | 565655.64 | 4191113.57 | 0.92945 | |
| 565665.64 | 4191113.57 | 0.87893 | 565675.64 | 4191113.57 | 0.83235 | |
| 565685.64 | 4191113.57 | 0.78941 | 565695.64 | 4191113.57 | 0.74962 | |
| 565705.64 | 4191113.57 | 0.71264 | 565715.64 | 4191113.57 | 0.67819 | |
| 565025.64 | 4191123.57 | 3.78141 | 565035.64 | 4191123.57 | 4.07976 | |
| 565045.64 | 4191123.57 | 4.36839 | 565055.64 | 4191123.57 | 4.63276 | |
| 565065.64 | 4191123.57 | 4.89569 | 565125.64 | 4191123.57 | 6.67093 | |
| 565135.64 | 4191123.57 | 6.99285 | 565145.64 | 4191123.57 | 7.37093 | |
| 565155.64 | 4191123.57 | 7.78904 | 565165.64 | 4191123.57 | 8.24830 | |
| 565175.64 | 4191123.57 | 8.73297 | 565185.64 | 4191123.57 | 9.28910 | |
| 565195.64 | 4191123.57 | 9.91403 | 565205.64 | 4191123.57 | 10.64164 | |
| 565245.64 | 4191123.57 | 8.83390 | 565335.64 | 4191123.57 | 11.47982 | |
| 565345.64 | 4191123.57 | 11.10947 | 565355.64 | 4191123.57 | 10.74040 | ←--MEIR |
| 565365.64 | 4191123.57 | 11.61348 | 565375.64 | 4191123.57 | 10.87468 | |
| 565385.64 | 4191123.57 | 10.14962 | 565495.64 | 4191123.57 | 3.21685 | |

| | | | | | |
|---|---|---|---|---|---|
| 565525.64 | 4191123.57 | 2.38432 | 565535.64 | 4191123.57 | 2.18279 |
| 565545.64 | 4191123.57 | 2.00624 | 565555.64 | 4191123.57 | 1.85032 |
| 565565.64 | 4191123.57 | 1.71325 | 565575.64 | 4191123.57 | 1.59056 |
| 565585.64 | 4191123.57 | 1.47958 | 565595.64 | 4191123.57 | 1.37738 |
| 565605.64 | 4191123.57 | 1.28515 | 565615.64 | 4191123.57 | 1.20233 |
| 565645.64 | 4191123.57 | 1.00164 | 565655.64 | 4191123.57 | 0.94376 |

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 *** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                      PAGE 299
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                     *** THE SUMMARY OF MAXIMUM PERIOD ( 43872 HRS) RESULTS ***


                                  ** CONC OF OTHER    IN MICROGRAMS/M**3                          **

                                                                                                          NETWORK
GROUP ID                        AVERAGE CONC                RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                 Maximum Exposed Individual Resident (MEIR) Location
ONSITE    1ST HIGHEST VALUE IS      10.87226 AT (  565355.64,  4191123.57,    78.41,   213.00,    1.50)  DC
          2ND HIGHEST VALUE IS      10.86124 AT (  565365.64,  4191123.57,    78.74,   213.00,    1.50)  DC
          3RD HIGHEST VALUE IS      10.77441 AT (  565345.64,  4191123.57,    78.07,   213.00,    1.50)  DC
          4TH HIGHEST VALUE IS      10.73096 AT (  565375.64,  4191123.57,    79.15,   213.00,    1.50)  DC
          5TH HIGHEST VALUE IS      10.57710 AT (  565335.64,  4191123.57,    77.63,   213.00,    1.50)  DC
          6TH HIGHEST VALUE IS      10.24653 AT (  565385.64,  4191123.57,    79.81,   213.00,    1.50)  DC
          7TH HIGHEST VALUE IS       9.61826 AT (  565295.64,  4191233.57,    77.65,   213.00,    1.50)  DC
          8TH HIGHEST VALUE IS       8.08324 AT (  565285.64,  4191233.57,    77.31,   213.00,    1.50)  DC
          9TH HIGHEST VALUE IS       8.04238 AT (  565375.64,  4191123.57,    79.15,   213.00,    6.10)  DC
         10TH HIGHEST VALUE IS       7.98778 AT (  565385.64,  4191123.57,    79.81,   213.00,    6.10)  DC

HAUL      1ST HIGHEST VALUE IS      11.96819 AT (  565175.64,  4191093.57,    70.41,   213.00,    1.50)  DC
          2ND HIGHEST VALUE IS      11.85855 AT (  565245.64,  4191103.57,    72.74,   213.00,    1.50)  DC
          3RD HIGHEST VALUE IS      11.77921 AT (  565305.64,  4191113.57,    75.92,   213.00,    1.50)  DC
          4TH HIGHEST VALUE IS      11.61348 AT (  565365.64,  4191123.57,    78.74,   213.00,    1.50)  DC
          5TH HIGHEST VALUE IS      11.47982 AT (  565335.64,  4191123.57,    77.63,   213.00,    1.50)  DC
          6TH HIGHEST VALUE IS      11.27900 AT (  565115.64,  4191083.57,    68.65,   213.00,    1.50)  DC
          7TH HIGHEST VALUE IS      11.25093 AT (  565185.64,  4191093.57,    70.74,   213.00,    1.50)  DC
          8TH HIGHEST VALUE IS      11.10947 AT (  565345.64,  4191123.57,    78.07,   213.00,    1.50)  DC
          9TH HIGHEST VALUE IS      11.07939 AT (  565255.64,  4191103.57,    73.14,   213.00,    1.50)  DC
         10TH HIGHEST VALUE IS      11.00656 AT (  565315.64,  4191113.57,    76.37,   213.00,    1.50)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
```

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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park                          ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                   ***        14:10:30
                                                                                                                     PAGE 300

*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            0 Warning Message(s)
A Total of         7953 Informational Message(s)

A Total of        43872 Hours Were Processed

A Total of         7152 Calm Hours Identified

A Total of          801 Missing Hours Identified (  1.83 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        15:47:10
                                                                                                                        PAGE   1
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
**Model Uses NO WET DEPLETION.  WETDPLT  =  F

**Model Uses URBAN Dispersion Algorithm for the SBL for    86 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   1671000.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
        1. Stack-tip Downwash.
        2. Model Accounts for ELEVated Terrain Effects.
        3. Use Calms Processing Routine.
        4. Use Missing Data Processing Routine.
        5. No Exponential Decay.
        6. Urban Roughness Length of 1.0 Meter Assumed.

**Other Options Specified:
        CCVR_Sub - Meteorological data includes CCVR substitutions
        TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of:  OTHER

**Model Calculates PERIOD Averages Only

**This Run Includes:     86 Source(s);       2 Source Group(s); and      16 Receptor(s)

               with:      0 POINT(s), including
                          0 POINTCAP(s) and      0 POINTHOR(s)
                and:     85 VOLUME source(s)
                and:      1 AREA type source(s)
                and:      0 LINE source(s)
                and:      0 RLINE/RLINEXT source(s)
                and:      0 OPENPIT source(s)
                and:      0 BUOYANT LINE source(s) with      0 line(s)


**Model Set To Continue RUNning After the Setup Testing.
```

```
**The AERMET Input Meteorological Data Version Date:  14134

**Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
         Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =     1.80 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =      3.6 MB of RAM.

**Input Runstream File:          aermod.inp
**Output Print File:             aermod.out

**Detailed Error/Message File:   UCB_School.err
**File for Summary of Results:   UCB_School.sum
```

```
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                          ***        15:47:10
                                                                                                                          PAGE   2
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN
```

*** VOLUME SOURCE DATA ***

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|---|---|---|---|---|---|---|---|---|---|---|
| L0000206 | 0 | 0.11765E-01 | 564966.1 | 4191071.1 | 65.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000207 | 0 | 0.11765E-01 | 564977.9 | 4191073.1 | 65.7 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000208 | 0 | 0.11765E-01 | 564989.8 | 4191075.1 | 66.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000209 | 0 | 0.11765E-01 | 565001.6 | 4191077.2 | 66.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000210 | 0 | 0.11765E-01 | 565013.4 | 4191079.2 | 66.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000211 | 0 | 0.11765E-01 | 565025.2 | 4191081.3 | 66.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000212 | 0 | 0.11765E-01 | 565037.1 | 4191083.3 | 66.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000213 | 0 | 0.11765E-01 | 565048.9 | 4191085.3 | 67.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000214 | 0 | 0.11765E-01 | 565060.7 | 4191087.4 | 67.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000215 | 0 | 0.11765E-01 | 565072.6 | 4191089.4 | 67.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000216 | 0 | 0.11765E-01 | 565084.4 | 4191091.5 | 67.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000217 | 0 | 0.11765E-01 | 565096.2 | 4191093.5 | 68.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000218 | 0 | 0.11765E-01 | 565108.0 | 4191095.5 | 68.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000219 | 0 | 0.11765E-01 | 565119.9 | 4191097.3 | 69.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000220 | 0 | 0.11765E-01 | 565131.8 | 4191099.1 | 69.7 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000221 | 0 | 0.11765E-01 | 565143.6 | 4191100.9 | 69.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000222 | 0 | 0.11765E-01 | 565155.5 | 4191102.7 | 70.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000223 | 0 | 0.11765E-01 | 565167.3 | 4191104.5 | 70.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000224 | 0 | 0.11765E-01 | 565179.2 | 4191106.3 | 70.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000225 | 0 | 0.11765E-01 | 565191.1 | 4191108.1 | 71.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000226 | 0 | 0.11765E-01 | 565202.9 | 4191110.0 | 71.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000227 | 0 | 0.11765E-01 | 565214.8 | 4191111.8 | 71.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000228 | 0 | 0.11765E-01 | 565226.7 | 4191113.6 | 72.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000229 | 0 | 0.11765E-01 | 565238.5 | 4191115.6 | 72.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000230 | 0 | 0.11765E-01 | 565250.3 | 4191117.7 | 73.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000231 | 0 | 0.11765E-01 | 565262.1 | 4191119.7 | 73.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000232 | 0 | 0.11765E-01 | 565274.0 | 4191121.8 | 74.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000233 | 0 | 0.11765E-01 | 565285.8 | 4191123.8 | 75.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000234 | 0 | 0.11765E-01 | 565297.6 | 4191125.8 | 75.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000235 | 0 | 0.11765E-01 | 565309.4 | 4191127.9 | 76.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000236 | 0 | 0.11765E-01 | 565321.3 | 4191129.9 | 77.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000237 | 0 | 0.11765E-01 | 565333.1 | 4191132.0 | 77.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000238 | 0 | 0.11765E-01 | 565344.9 | 4191134.0 | 78.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000239 | 0 | 0.11765E-01 | 565356.7 | 4191136.1 | 78.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000240 | 0 | 0.11765E-01 | 565368.6 | 4191138.1 | 78.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000241 | 0 | 0.11765E-01 | 565380.4 | 4191140.1 | 79.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000242 | 0 | 0.11765E-01 | 565392.2 | 4191142.2 | 80.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000243 | 0 | 0.11765E-01 | 565404.0 | 4191144.2 | 81.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| L0000244 | 0 | 0.11765E-01 | 565415.9 | 4191146.3 | 81.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000245 | 0 | 0.11765E-01 | 565424.3 | 4191150.6 | 82.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |

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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                        ***        15:47:10
                                                                                                                         PAGE   3
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN
```

*** VOLUME SOURCE DATA ***

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|---|---|---|---|---|---|---|---|---|---|---|
| L0000246 | 0 | 0.11765E-01 | 565422.0 | 4191162.4 | 82.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000247 | 0 | 0.11765E-01 | 565419.7 | 4191174.2 | 82.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000248 | 0 | 0.11765E-01 | 565417.3 | 4191185.9 | 82.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000249 | 0 | 0.11765E-01 | 565415.0 | 4191197.7 | 82.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000250 | 0 | 0.11765E-01 | 565412.7 | 4191209.5 | 82.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000251 | 0 | 0.11765E-01 | 565410.3 | 4191221.3 | 82.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000252 | 0 | 0.11765E-01 | 565408.0 | 4191233.0 | 82.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000253 | 0 | 0.11765E-01 | 565405.7 | 4191244.8 | 82.7 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000254 | 0 | 0.11765E-01 | 565394.4 | 4191243.5 | 82.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000255 | 0 | 0.11765E-01 | 565382.6 | 4191241.4 | 81.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000256 | 0 | 0.11765E-01 | 565370.8 | 4191239.3 | 80.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000257 | 0 | 0.11765E-01 | 565359.0 | 4191237.2 | 80.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000258 | 0 | 0.11765E-01 | 565347.1 | 4191235.1 | 79.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000259 | 0 | 0.11765E-01 | 565335.3 | 4191233.0 | 79.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000260 | 0 | 0.11765E-01 | 565323.5 | 4191230.8 | 78.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000261 | 0 | 0.11765E-01 | 565311.7 | 4191228.7 | 78.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000262 | 0 | 0.11765E-01 | 565299.9 | 4191226.6 | 77.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000263 | 0 | 0.11765E-01 | 565288.1 | 4191224.5 | 77.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000264 | 0 | 0.11765E-01 | 565276.3 | 4191222.4 | 76.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000265 | 0 | 0.11765E-01 | 565264.4 | 4191220.4 | 76.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000266 | 0 | 0.11765E-01 | 565252.6 | 4191218.5 | 75.7 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000267 | 0 | 0.11765E-01 | 565240.7 | 4191216.6 | 75.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000268 | 0 | 0.11765E-01 | 565228.9 | 4191214.7 | 74.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000269 | 0 | 0.11765E-01 | 565217.0 | 4191212.9 | 74.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000270 | 0 | 0.11765E-01 | 565205.2 | 4191211.0 | 73.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000271 | 0 | 0.11765E-01 | 565193.3 | 4191209.1 | 73.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000272 | 0 | 0.11765E-01 | 565181.5 | 4191207.2 | 73.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000273 | 0 | 0.11765E-01 | 565169.6 | 4191205.4 | 73.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000274 | 0 | 0.11765E-01 | 565157.8 | 4191203.5 | 72.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000275 | 0 | 0.11765E-01 | 565145.9 | 4191201.6 | 72.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000276 | 0 | 0.11765E-01 | 565134.1 | 4191199.7 | 72.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000277 | 0 | 0.11765E-01 | 565122.2 | 4191197.8 | 71.7 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000278 | 0 | 0.11765E-01 | 565110.4 | 4191196.0 | 71.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000279 | 0 | 0.11765E-01 | 565098.5 | 4191194.1 | 70.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000280 | 0 | 0.11765E-01 | 565086.7 | 4191192.2 | 70.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000281 | 0 | 0.11765E-01 | 565074.8 | 4191190.3 | 70.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000282 | 0 | 0.11765E-01 | 565063.0 | 4191188.4 | 70.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000283 | 0 | 0.11765E-01 | 565051.1 | 4191186.6 | 69.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| L0000284 | 0 | 0.11765E-01 | 565039.2 | 4191184.7 | 69.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000285 | 0 | 0.11765E-01 | 565027.4 | 4191182.8 | 69.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |

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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        15:47:10
                                                                                                                        PAGE   4
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN
```

*** VOLUME SOURCE DATA ***

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|---|---|---|---|---|---|---|---|---|---|---|
| L0000286 | 0 | 0.11765E-01 | 565015.5 | 4191180.9 | 69.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000287 | 0 | 0.11765E-01 | 565003.7 | 4191179.0 | 69.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000288 | 0 | 0.11765E-01 | 564991.8 | 4191177.2 | 68.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000289 | 0 | 0.11765E-01 | 564980.0 | 4191175.3 | 68.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000290 | 0 | 0.11765E-01 | 564968.1 | 4191173.4 | 68.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |

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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        15:47:10
                                                                                                                        PAGE   5
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN
```

*** AREAPOLY SOURCE DATA ***

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC /METER**2) | LOCATION OF AREA X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | NUMBER OF VERTS. | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|---|---|---|---|---|---|---|---|---|---|---|
| PAREA1 | 0 | 0.88358E-04 | 565264.2 | 4191212.0 | 75.9 | 4.15 | 4 | 1.93 | YES | HRDOW |

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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        15:47:10
                                                                                                                        PAGE   6
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID                                          SOURCE IDs
-----------                                          ----------

 ONSITE     PAREA1      ,

 HAUL       L0000206    , L0000207    , L0000208    , L0000209    , L0000210    , L0000211    , L0000212    , L0000213    ,

            L0000214    , L0000215    , L0000216    , L0000217    , L0000218    , L0000219    , L0000220    , L0000221    ,

            L0000222    , L0000223    , L0000224    , L0000225    , L0000226    , L0000227    , L0000228    , L0000229    ,

            L0000230    , L0000231    , L0000232    , L0000233    , L0000234    , L0000235    , L0000236    , L0000237    ,

            L0000238    , L0000239    , L0000240    , L0000241    , L0000242    , L0000243    , L0000244    , L0000245    ,

            L0000246    , L0000247    , L0000248    , L0000249    , L0000250    , L0000251    , L0000252    , L0000253    ,

            L0000254    , L0000255    , L0000256    , L0000257    , L0000258    , L0000259    , L0000260    , L0000261    ,

            L0000262    , L0000263    , L0000264    , L0000265    , L0000266    , L0000267    , L0000268    , L0000269    ,

            L0000270    , L0000271    , L0000272    , L0000273    , L0000274    , L0000275    , L0000276    , L0000277    ,

            L0000278    , L0000279    , L0000280    , L0000281    , L0000282    , L0000283    , L0000284    , L0000285    ,

            L0000286    , L0000287    , L0000288    , L0000289    , L0000290    ,
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        15:47:10
                                                                                                                        PAGE   7
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** SOURCE IDs DEFINED AS URBAN SOURCES ***

 URBAN ID   URBAN POP                                  SOURCE IDs
 --------   ---------                                  ----------

             1671000.   PAREA1      , L0000206    , L0000207    , L0000208    , L0000209    , L0000210    , L0000211    ,
L0000212    ,

            L0000213    , L0000214    , L0000215    , L0000216    , L0000217    , L0000218    , L0000219    , L0000220    ,

            L0000221    , L0000222    , L0000223    , L0000224    , L0000225    , L0000226    , L0000227    , L0000228    ,

            L0000229    , L0000230    , L0000231    , L0000232    , L0000233    , L0000234    , L0000235    , L0000236    ,

            L0000237    , L0000238    , L0000239    , L0000240    , L0000241    , L0000242    , L0000243    , L0000244    ,

            L0000245    , L0000246    , L0000247    , L0000248    , L0000249    , L0000250    , L0000251    , L0000252    ,

            L0000253    , L0000254    , L0000255    , L0000256    , L0000257    , L0000258    , L0000259    , L0000260    ,

            L0000261    , L0000262    , L0000263    , L0000264    , L0000265    , L0000266    , L0000267    , L0000268    ,

            L0000269    , L0000270    , L0000271    , L0000272    , L0000273    , L0000274    , L0000275    , L0000276    ,

            L0000277    , L0000278    , L0000279    , L0000280    , L0000281    , L0000282    , L0000283    , L0000284    ,

            L0000285    , L0000286    , L0000287    , L0000288    , L0000289    , L0000290    ,
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        15:47:10
                                                                                                                        PAGE   8
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = PAREA1       ; SOURCE TYPE = AREAPOLY :
 HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
   9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .0000E+00   13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .1000E+01
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        15:47:10
                                                                                                                        PAGE   9
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000206 to L0000290    ; SOURCE TYPE = VOLUME   :
 HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
   9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .0000E+00   13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .1000E+01
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                        ***        15:47:10
                                                                                                                         PAGE  94
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

    ( 565021.3, 4191239.4,      71.1,     213.0,       1.5);         ( 565031.3, 4191239.4,      71.3,     213.0,       1.5);
    ( 565041.3, 4191239.4,      71.4,     213.0,       1.5);         ( 565051.3, 4191239.4,      71.7,     213.0,       1.5);
    ( 565021.3, 4191249.4,      71.2,     213.0,       1.5);         ( 565031.3, 4191249.4,      71.5,     213.0,       1.5);
    ( 565041.3, 4191249.4,      71.7,     213.0,       1.5);         ( 565051.3, 4191249.4,      72.0,     213.0,       1.5);
    ( 565021.3, 4191259.4,      71.4,     213.0,       1.5);         ( 565031.3, 4191259.4,      71.7,     213.0,       1.5);
    ( 565041.3, 4191259.4,      72.0,     213.0,       1.5);         ( 565051.3, 4191259.4,      72.4,     213.0,       1.5);
    ( 565021.3, 4191269.4,      71.7,     213.0,       1.5);         ( 565031.3, 4191269.4,      72.0,     213.0,       1.5);
    ( 565041.3, 4191269.4,      72.4,     213.0,       1.5);         ( 565051.3, 4191269.4,      72.7,     213.0,       1.5);
```

```
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        15:47:10
                                                                                                                        PAGE  95
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
                                                          (1=YES; 0=NO)

          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
```

NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

```
                                  *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
                                                        (METERS/SEC)

                                      1.54,   3.09,   5.14,   8.23,  10.80,
```

```
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        15:47:10
                                                                                                                        PAGE  96
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                  *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

  Surface file:   ..\met data-1.8m\724930\724930.SFC                                                  Met Version:  14134
  Profile file:   ..\met data-1.8m\724930\724930.PFL
  Surface format: FREE
  Profile format: FREE
  Surface station no.:    23230                  Upper air station no.:    23230
                 Name: OAKLAND/WSO_AP                              Name: OAKLAND/WSO_AP
                 Year:   2009                                      Year:   2009

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS   WD     HT  REF TA     HT
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
09 01 01   1 01  -17.2  0.303 -9.000 -9.000 -999.  401.    147.2  0.63   0.86   1.00    2.36   81.   10.0  282.5    2.0
09 01 01   1 02  -21.8  0.383 -9.000 -9.000 -999.  569.    234.6  0.63   0.86   1.00    2.86   68.   10.0  282.0    2.0
09 01 01   1 03  -26.3  0.460 -9.000 -9.000 -999.  749.    337.1  0.63   0.86   1.00    3.36   84.   10.0  280.9    2.0
09 01 01   1 04  -15.4  0.270 -9.000 -9.000 -999.  368.    116.1  0.47   0.86   1.00    2.36   53.   10.0  280.9    2.0
09 01 01   1 05  -26.3  0.460 -9.000 -9.000 -999.  749.    336.3  0.63   0.86   1.00    3.36   73.   10.0  280.4    2.0
09 01 01   1 06  -21.9  0.383 -9.000 -9.000 -999.  573.    232.9  0.63   0.86   1.00    2.86   82.   10.0  280.4    2.0
09 01 01   1 07  -22.0  0.383 -9.000 -9.000 -999.  569.    232.5  0.63   0.86   1.00    2.86   95.   10.0  279.9    2.0
09 01 01   1 08  -11.2  0.196 -9.000 -9.000 -999.  238.     60.6  0.63   0.86   0.76    1.76   73.   10.0  279.9    2.0
09 01 01   1 09   -2.2 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.45   0.86   0.39    0.00    0.   10.0  280.4    2.0
09 01 01   1 10    6.8  0.266  0.264  0.016   98.  329.   -250.8  0.63   0.86   0.27    1.76   91.   10.0  280.9    2.0
09 01 01   1 11   15.5 -9.000 -9.000 -9.000  177. -999. -99999.0  0.45   0.86   0.22    0.00    0.   10.0  282.0    2.0
09 01 01   1 12   96.1  0.393  1.019  0.014  401.  591.    -57.4  0.22   0.86   0.21    3.36  266.   10.0  281.4    2.0
09 01 01   1 13  102.5  0.395  1.092  0.014  462.  595.    -54.4  0.22   0.86   0.20    3.36  283.   10.0  282.0    2.0
09 01 01   1 14   89.9  0.297  1.066  0.015  489.  394.    -26.5  0.22   0.86   0.21    2.36  249.   10.0  282.0    2.0
09 01 01   1 15   62.1  0.383  0.954  0.014  507.  569.    -82.1  0.22   0.86   0.24    3.36  242.   10.0  282.5    2.0
09 01 01   1 16   23.1  0.665  0.690  0.006  513. 1300.  -1150.4  0.52   0.86   0.33    4.86  304.   10.0  282.5    2.0
09 01 01   1 17  -37.0  0.486 -9.000 -9.000 -999.  846.    280.6  0.22   0.86   0.56    4.86  291.   10.0  281.4    2.0
09 01 01   1 18  -52.2  0.480 -9.000 -9.000 -999.  799.    191.9  0.52   0.86   1.00    3.86  307.   10.0  280.9    2.0
09 01 01   1 19  -25.6  0.224 -9.000 -9.000 -999.  327.     39.8  0.52   0.86   1.00    2.36  334.   10.0  280.4    2.0
09 01 01   1 20  -11.1  0.119 -9.000 -9.000 -999.  115.     13.8  0.52   0.86   1.00    1.76  317.   10.0  280.4    2.0
09 01 01   1 21  -10.3  0.119 -9.000 -9.000 -999.   98.     14.7  0.52   0.86   1.00    1.76  320.   10.0  280.4    2.0
09 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.45   0.86   1.00    0.00    0.   10.0  280.9    2.0
09 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.45   0.86   1.00    0.00    0.   10.0  281.4    2.0
09 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.45   0.86   1.00    0.00    0.   10.0  281.4    2.0


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
09 01 01 01   10.0 1   81.    2.36   282.6   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
```

Model Output - Construction HRA
Unit Emission Rates (1 g/s) - Day Care Receptors

```
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        15:47:10
                                                                                                                        PAGE  97
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                          *** THE PERIOD ( 43872 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: ONSITE   ***
                              INCLUDING SOURCE(S):     PAREA1      ,

                                     *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                  ** CONC OF OTHER    IN MICROGRAMS/M**3                          **
```

| X-COORD (M) | Y-COORD (M) | CONC | X-COORD (M) | Y-COORD (M) | CONC | |
|---|---|---|---|---|---|---|
| 565021.32 | 4191239.40 | 0.25018 | 565031.32 | 4191239.40 | 0.26698 | |
| 565041.32 | 4191239.40 | 0.28558 | 565051.32 | 4191239.40 | 0.30644 | |
| 565021.32 | 4191249.40 | 0.25227 | 565031.32 | 4191249.40 | 0.26929 | |
| 565041.32 | 4191249.40 | 0.28811 | 565051.32 | 4191249.40 | 0.30909 | |
| 565021.32 | 4191259.40 | 0.25410 | 565031.32 | 4191259.40 | 0.27123 | |
| 565041.32 | 4191259.40 | 0.29016 | 565051.32 | 4191259.40 | 0.31115 | |
| 565021.32 | 4191269.40 | 0.25568 | 565031.32 | 4191269.40 | 0.27279 | |
| 565041.32 | 4191269.40 | 0.29167 | 565051.32 | 4191269.40 | 0.31256 | ←**Maximum Exposed Receptor** |

Model Output - Construction HRA
Unit Emission Rates (1 g/s) - Day Care Receptors

```
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        15:47:10
                                                                                                                        PAGE  98
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                          *** THE PERIOD ( 43872 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: HAUL     ***
                              INCLUDING SOURCE(S):     L0000206    , L0000207    , L0000208    , L0000209    , L0000210    ,
               L0000211    , L0000212    , L0000213    , L0000214    , L0000215    , L0000216    , L0000217    , L0000218    ,
               L0000219    , L0000220    , L0000221    , L0000222    , L0000223    , L0000224    , L0000225    , L0000226    ,
               L0000227    , L0000228    , L0000229    , L0000230    , L0000231    , L0000232    , L0000233    ,  . . .      ,

                                      *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                  ** CONC OF OTHER    IN MICROGRAMS/M**3                          **
```

| X-COORD (M) | Y-COORD (M) | CONC | X-COORD (M) | Y-COORD (M) | CONC | |
|---|---|---|---|---|---|---|
| 565021.32 | 4191239.40 | 1.84693 | 565031.32 | 4191239.40 | 1.99500 | |
| 565041.32 | 4191239.40 | 2.14644 | 565051.32 | 4191239.40 | 2.28783 | |
| 565021.32 | 4191249.40 | 1.53803 | 565031.32 | 4191249.40 | 1.64867 | |
| 565041.32 | 4191249.40 | 1.75765 | 565051.32 | 4191249.40 | 1.86521 | |
| 565021.32 | 4191259.40 | 1.30855 | 565031.32 | 4191259.40 | 1.39202 | |
| 565041.32 | 4191259.40 | 1.47601 | 565051.32 | 4191259.40 | 1.56004 | |
| 565021.32 | 4191269.40 | 1.12865 | 565031.32 | 4191269.40 | 1.19613 | |
| 565041.32 | 4191269.40 | 1.26363 | 565051.32 | 4191269.40 | 1.33042 | ←Max Exposed Receptor |

```
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                     ***        15:47:10
                                                                                                                      PAGE  99
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                           *** THE SUMMARY OF MAXIMUM PERIOD ( 43872 HRS) RESULTS ***

                                       ** CONC OF OTHER    IN MICROGRAMS/M**3                          **

                                                                                                              NETWORK
GROUP ID                      AVERAGE CONC                RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                            Maximum Exposed Student Receptor Location
ONSITE     1ST HIGHEST VALUE IS       0.31256 AT (  565051.32,  4191269.40,     72.70,    213.00,     1.50)  DC
           2ND HIGHEST VALUE IS       0.31115 AT (  565051.32,  4191259.40,     72.36,    213.00,     1.50)  DC
           3RD HIGHEST VALUE IS       0.30909 AT (  565051.32,  4191249.40,     72.03,    213.00,     1.50)  DC
           4TH HIGHEST VALUE IS       0.30644 AT (  565051.32,  4191239.40,     71.70,    213.00,     1.50)  DC
           5TH HIGHEST VALUE IS       0.29167 AT (  565041.32,  4191269.40,     72.36,    213.00,     1.50)  DC
           6TH HIGHEST VALUE IS       0.29016 AT (  565041.32,  4191259.40,     72.03,    213.00,     1.50)  DC
           7TH HIGHEST VALUE IS       0.28811 AT (  565041.32,  4191249.40,     71.71,    213.00,     1.50)  DC
           8TH HIGHEST VALUE IS       0.28558 AT (  565041.32,  4191239.40,     71.40,    213.00,     1.50)  DC
           9TH HIGHEST VALUE IS       0.27279 AT (  565031.32,  4191269.40,     72.03,    213.00,     1.50)  DC
          10TH HIGHEST VALUE IS       0.27123 AT (  565031.32,  4191259.40,     71.70,    213.00,     1.50)  DC

HAUL       1ST HIGHEST VALUE IS       2.28783 AT (  565051.32,  4191239.40,     71.70,    213.00,     1.50)  DC
           2ND HIGHEST VALUE IS       2.14644 AT (  565041.32,  4191239.40,     71.40,    213.00,     1.50)  DC
           3RD HIGHEST VALUE IS       1.99500 AT (  565031.32,  4191239.40,     71.26,    213.00,     1.50)  DC
           4TH HIGHEST VALUE IS       1.86521 AT (  565051.32,  4191249.40,     72.03,    213.00,     1.50)  DC
           5TH HIGHEST VALUE IS       1.84693 AT (  565021.32,  4191239.40,     71.11,    213.00,     1.50)  DC
           6TH HIGHEST VALUE IS       1.75765 AT (  565041.32,  4191249.40,     71.71,    213.00,     1.50)  DC
           7TH HIGHEST VALUE IS       1.64867 AT (  565031.32,  4191249.40,     71.46,    213.00,     1.50)  DC
           8TH HIGHEST VALUE IS       1.56004 AT (  565051.32,  4191259.40,     72.36,    213.00,     1.50)  DC
           9TH HIGHEST VALUE IS       1.53803 AT (  565021.32,  4191249.40,     71.20,    213.00,     1.50)  DC
          10TH HIGHEST VALUE IS       1.47601 AT (  565041.32,  4191259.40,     72.03,    213.00,     1.50)  DC

*** RECEPTOR TYPES:  GC = GRIDCART
                     GP = GRIDPOLR
                     DC = DISCCART
                     DP = DISCPOLR
```

```
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park -Cornerstone Children's Ctr ***        11/20/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        15:47:10
                                                                                                                        PAGE 100

*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            0 Warning Message(s)
A Total of         7953 Informational Message(s)

A Total of        43872 Hours Were Processed

A Total of         7152 Calm Hours Identified

A Total of          801 Missing Hours Identified (  1.83 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

```
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE   1
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Model Is Setup For Calculation of Average CONCentration Values.

  --  DEPOSITION LOGIC  --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
**Model Uses NO WET DEPLETION.  WETDPLT  =  F

**Model Uses URBAN Dispersion Algorithm for the SBL for    86 Source(s),
  for Total of    1 Urban Area(s):
  Urban Population =   1671000.0 ;  Urban Roughness Length =  1.000 m

**Model Uses Regulatory DEFAULT Options:
        1. Stack-tip Downwash.
        2. Model Accounts for ELEVated Terrain Effects.
        3. Use Calms Processing Routine.
        4. Use Missing Data Processing Routine.
        5. No Exponential Decay.
        6. Urban Roughness Length of 1.0 Meter Assumed.

**Other Options Specified:
        CCVR_Sub - Meteorological data includes CCVR substitutions
        TEMP_Sub - Meteorological data includes TEMP substitutions

**Model Accepts FLAGPOLE Receptor Heights.

**The User Specified a Pollutant Type of:  OTHER

**Model Calculates PERIOD Averages Only

**This Run Includes:     86 Source(s);       2 Source Group(s); and     120 Receptor(s)

               with:      0 POINT(s), including
                          0 POINTCAP(s) and      0 POINTHOR(s)
                and:     85 VOLUME source(s)
                and:      1 AREA type source(s)
                and:      0 LINE source(s)
                and:      0 RLINE/RLINEXT source(s)
                and:      0 OPENPIT source(s)
                and:      0 BUOYANT LINE source(s) with      0 line(s)


**Model Set To Continue RUNning After the Setup Testing.
```

```
**The AERMET Input Meteorological Data Version Date:  14134

**Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
         Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

**NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =     1.80 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =      3.6 MB of RAM.

**Input Runstream File:          aermod.inp
**Output Print File:             aermod.out

**Detailed Error/Message File:   UCB_SchoolRose.err
**File for Summary of Results:   UCB_SchoolRose.sum
```

*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** VOLUME SOURCE DATA ***

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|---|---|---|---|---|---|---|---|---|---|---|
| L0000001 | 0 | 0.11765E-01 | 564966.1 | 4191071.1 | 65.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000002 | 0 | 0.11765E-01 | 564977.9 | 4191073.1 | 65.7 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000003 | 0 | 0.11765E-01 | 564989.8 | 4191075.1 | 66.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000004 | 0 | 0.11765E-01 | 565001.6 | 4191077.2 | 66.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000005 | 0 | 0.11765E-01 | 565013.4 | 4191079.2 | 66.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000006 | 0 | 0.11765E-01 | 565025.2 | 4191081.3 | 66.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000007 | 0 | 0.11765E-01 | 565037.1 | 4191083.3 | 66.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000008 | 0 | 0.11765E-01 | 565048.9 | 4191085.3 | 67.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000009 | 0 | 0.11765E-01 | 565060.7 | 4191087.4 | 67.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000010 | 0 | 0.11765E-01 | 565072.6 | 4191089.4 | 67.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000011 | 0 | 0.11765E-01 | 565084.4 | 4191091.5 | 67.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000012 | 0 | 0.11765E-01 | 565096.2 | 4191093.5 | 68.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000013 | 0 | 0.11765E-01 | 565108.0 | 4191095.5 | 68.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000014 | 0 | 0.11765E-01 | 565119.9 | 4191097.3 | 69.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000015 | 0 | 0.11765E-01 | 565131.8 | 4191099.1 | 69.7 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000016 | 0 | 0.11765E-01 | 565143.6 | 4191100.9 | 69.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000017 | 0 | 0.11765E-01 | 565155.5 | 4191102.7 | 70.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000018 | 0 | 0.11765E-01 | 565167.3 | 4191104.5 | 70.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000019 | 0 | 0.11765E-01 | 565179.2 | 4191106.3 | 70.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000020 | 0 | 0.11765E-01 | 565191.1 | 4191108.1 | 71.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000021 | 0 | 0.11765E-01 | 565202.9 | 4191110.0 | 71.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000022 | 0 | 0.11765E-01 | 565214.8 | 4191111.8 | 71.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000023 | 0 | 0.11765E-01 | 565226.7 | 4191113.6 | 72.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000024 | 0 | 0.11765E-01 | 565238.5 | 4191115.6 | 72.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000025 | 0 | 0.11765E-01 | 565250.3 | 4191117.7 | 73.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000026 | 0 | 0.11765E-01 | 565262.1 | 4191119.7 | 73.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000027 | 0 | 0.11765E-01 | 565274.0 | 4191121.8 | 74.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000028 | 0 | 0.11765E-01 | 565285.8 | 4191123.8 | 75.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000029 | 0 | 0.11765E-01 | 565297.6 | 4191125.8 | 75.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000030 | 0 | 0.11765E-01 | 565309.4 | 4191127.9 | 76.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000031 | 0 | 0.11765E-01 | 565321.3 | 4191129.9 | 77.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000032 | 0 | 0.11765E-01 | 565333.1 | 4191132.0 | 77.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000033 | 0 | 0.11765E-01 | 565344.9 | 4191134.0 | 78.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000034 | 0 | 0.11765E-01 | 565356.7 | 4191136.1 | 78.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000035 | 0 | 0.11765E-01 | 565368.6 | 4191138.1 | 78.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000036 | 0 | 0.11765E-01 | 565380.4 | 4191140.1 | 79.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000037 | 0 | 0.11765E-01 | 565392.2 | 4191142.2 | 80.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000038 | 0 | 0.11765E-01 | 565404.0 | 4191144.2 | 81.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| L0000039 | 0 | 0.11765E-01 | 565415.9 | 4191146.3 | 81.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000040 | 0 | 0.11765E-01 | 565424.3 | 4191150.6 | 82.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |

```
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE   3
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN
```

*** VOLUME SOURCE DATA ***

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|---|---|---|---|---|---|---|---|---|---|---|
| L0000041 | 0 | 0.11765E-01 | 565422.0 | 4191162.4 | 82.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000042 | 0 | 0.11765E-01 | 565419.7 | 4191174.2 | 82.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000043 | 0 | 0.11765E-01 | 565417.3 | 4191185.9 | 82.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000044 | 0 | 0.11765E-01 | 565415.0 | 4191197.7 | 82.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000045 | 0 | 0.11765E-01 | 565412.7 | 4191209.5 | 82.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000046 | 0 | 0.11765E-01 | 565410.3 | 4191221.3 | 82.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000047 | 0 | 0.11765E-01 | 565408.0 | 4191233.0 | 82.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000048 | 0 | 0.11765E-01 | 565405.7 | 4191244.8 | 82.7 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000049 | 0 | 0.11765E-01 | 565394.4 | 4191243.5 | 82.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000050 | 0 | 0.11765E-01 | 565382.6 | 4191241.4 | 81.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000051 | 0 | 0.11765E-01 | 565370.8 | 4191239.3 | 80.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000052 | 0 | 0.11765E-01 | 565359.0 | 4191237.2 | 80.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000053 | 0 | 0.11765E-01 | 565347.1 | 4191235.1 | 79.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000054 | 0 | 0.11765E-01 | 565335.3 | 4191233.0 | 79.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000055 | 0 | 0.11765E-01 | 565323.5 | 4191230.8 | 78.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000056 | 0 | 0.11765E-01 | 565311.7 | 4191228.7 | 78.0 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000057 | 0 | 0.11765E-01 | 565299.9 | 4191226.6 | 77.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000058 | 0 | 0.11765E-01 | 565288.1 | 4191224.5 | 77.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000059 | 0 | 0.11765E-01 | 565276.3 | 4191222.4 | 76.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000060 | 0 | 0.11765E-01 | 565264.4 | 4191220.4 | 76.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000061 | 0 | 0.11765E-01 | 565252.6 | 4191218.5 | 75.7 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000062 | 0 | 0.11765E-01 | 565240.7 | 4191216.6 | 75.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000063 | 0 | 0.11765E-01 | 565228.9 | 4191214.7 | 74.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000064 | 0 | 0.11765E-01 | 565217.0 | 4191212.9 | 74.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000065 | 0 | 0.11765E-01 | 565205.2 | 4191211.0 | 73.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000066 | 0 | 0.11765E-01 | 565193.3 | 4191209.1 | 73.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000067 | 0 | 0.11765E-01 | 565181.5 | 4191207.2 | 73.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000068 | 0 | 0.11765E-01 | 565169.6 | 4191205.4 | 73.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000069 | 0 | 0.11765E-01 | 565157.8 | 4191203.5 | 72.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000070 | 0 | 0.11765E-01 | 565145.9 | 4191201.6 | 72.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000071 | 0 | 0.11765E-01 | 565134.1 | 4191199.7 | 72.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000072 | 0 | 0.11765E-01 | 565122.2 | 4191197.8 | 71.7 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000073 | 0 | 0.11765E-01 | 565110.4 | 4191196.0 | 71.2 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000074 | 0 | 0.11765E-01 | 565098.5 | 4191194.1 | 70.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000075 | 0 | 0.11765E-01 | 565086.7 | 4191192.2 | 70.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000076 | 0 | 0.11765E-01 | 565074.8 | 4191190.3 | 70.8 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000077 | 0 | 0.11765E-01 | 565063.0 | 4191188.4 | 70.4 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000078 | 0 | 0.11765E-01 | 565051.1 | 4191186.6 | 69.9 | 4.15 | 5.58 | 3.26 | YES | HRDOW |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| L0000079 | 0 | 0.11765E-01 | 565039.2 | 4191184.7 | 69.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000080 | 0 | 0.11765E-01 | 565027.4 | 4191182.8 | 69.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |

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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE   4
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN
```

*** VOLUME SOURCE DATA ***

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC) | X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | INIT. SY (METERS) | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|---|---|---|---|---|---|---|---|---|---|---|
| L0000081 | 0 | 0.11765E-01 | 565015.5 | 4191180.9 | 69.5 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000082 | 0 | 0.11765E-01 | 565003.7 | 4191179.0 | 69.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000083 | 0 | 0.11765E-01 | 564991.8 | 4191177.2 | 68.6 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000084 | 0 | 0.11765E-01 | 564980.0 | 4191175.3 | 68.3 | 4.15 | 5.58 | 3.26 | YES | HRDOW |
| L0000085 | 0 | 0.11765E-01 | 564968.1 | 4191173.4 | 68.1 | 4.15 | 5.58 | 3.26 | YES | HRDOW |

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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE   5
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN
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*** AREAPOLY SOURCE DATA ***

| SOURCE ID | NUMBER PART. CATS. | EMISSION RATE (GRAMS/SEC /METER**2) | LOCATION OF AREA X (METERS) | Y (METERS) | BASE ELEV. (METERS) | RELEASE HEIGHT (METERS) | NUMBER OF VERTS. | INIT. SZ (METERS) | URBAN SOURCE | EMISSION RATE SCALAR VARY BY |
|---|---|---|---|---|---|---|---|---|---|---|
| PAREA1 | 0 | 0.88358E-04 | 565264.2 | 4191212.0 | 75.9 | 4.15 | 4 | 1.93 | YES | HRDOW |

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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE   6
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID                                          SOURCE IDs
-----------                                          ----------

 ONSITE     PAREA1      ,

 HAUL       L0000001    , L0000002    , L0000003    , L0000004    , L0000005    , L0000006    , L0000007    , L0000008    ,

            L0000009    , L0000010    , L0000011    , L0000012    , L0000013    , L0000014    , L0000015    , L0000016    ,

            L0000017    , L0000018    , L0000019    , L0000020    , L0000021    , L0000022    , L0000023    , L0000024    ,

            L0000025    , L0000026    , L0000027    , L0000028    , L0000029    , L0000030    , L0000031    , L0000032    ,

            L0000033    , L0000034    , L0000035    , L0000036    , L0000037    , L0000038    , L0000039    , L0000040    ,

            L0000041    , L0000042    , L0000043    , L0000044    , L0000045    , L0000046    , L0000047    , L0000048    ,

            L0000049    , L0000050    , L0000051    , L0000052    , L0000053    , L0000054    , L0000055    , L0000056    ,

            L0000057    , L0000058    , L0000059    , L0000060    , L0000061    , L0000062    , L0000063    , L0000064    ,

            L0000065    , L0000066    , L0000067    , L0000068    , L0000069    , L0000070    , L0000071    , L0000072    ,

            L0000073    , L0000074    , L0000075    , L0000076    , L0000077    , L0000078    , L0000079    , L0000080    ,

            L0000081    , L0000082    , L0000083    , L0000084    , L0000085    ,
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE   7
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** SOURCE IDs DEFINED AS URBAN SOURCES ***

 URBAN ID   URBAN POP                                  SOURCE IDs
 --------   ---------                                  ----------

             1671000.   PAREA1      , L0000001    , L0000002    , L0000003    , L0000004    , L0000005    , L0000006    ,
L0000007    ,

            L0000008    , L0000009    , L0000010    , L0000011    , L0000012    , L0000013    , L0000014    , L0000015    ,

            L0000016    , L0000017    , L0000018    , L0000019    , L0000020    , L0000021    , L0000022    , L0000023    ,

            L0000024    , L0000025    , L0000026    , L0000027    , L0000028    , L0000029    , L0000030    , L0000031    ,

            L0000032    , L0000033    , L0000034    , L0000035    , L0000036    , L0000037    , L0000038    , L0000039    ,

            L0000040    , L0000041    , L0000042    , L0000043    , L0000044    , L0000045    , L0000046    , L0000047    ,

            L0000048    , L0000049    , L0000050    , L0000051    , L0000052    , L0000053    , L0000054    , L0000055    ,

            L0000056    , L0000057    , L0000058    , L0000059    , L0000060    , L0000061    , L0000062    , L0000063    ,

            L0000064    , L0000065    , L0000066    , L0000067    , L0000068    , L0000069    , L0000070    , L0000071    ,

            L0000072    , L0000073    , L0000074    , L0000075    , L0000076    , L0000077    , L0000078    , L0000079    ,

            L0000080    , L0000081    , L0000082    , L0000083    , L0000084    , L0000085    ,
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE   8
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = PAREA1       ; SOURCE TYPE = AREAPOLY :
 HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
   9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .0000E+00   13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .1000E+01
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE   9
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000001 to L0000085     ; SOURCE TYPE = VOLUME   :
 HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .1000E+01
   9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .0000E+00   13  .1000E+01   14  .1000E+01   15  .1000E+01   16  .1000E+01
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
   1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00    6  .0000E+00    7  .0000E+00    8  .0000E+00
   9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00   14  .0000E+00   15  .0000E+00   16  .0000E+00
  17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00   22  .0000E+00   23  .0000E+00   24  .0000E+00
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*** MODELOPTs: RegDFAULT CONC ELEV FLGPOL URBAN

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ( 565411.2, | 4191041.3, | 79.1, | 213.0, | 1.5); | ( 565421.2, | 4191041.3, | 79.4, | 213.0, | 1.5); |
| ( 565431.2, | 4191041.3, | 79.8, | 213.0, | 1.5); | ( 565441.2, | 4191041.3, | 80.1, | 213.0, | 1.5); |
| ( 565411.2, | 4191051.3, | 79.4, | 213.0, | 1.5); | ( 565421.2, | 4191051.3, | 79.7, | 213.0, | 1.5); |
| ( 565431.2, | 4191051.3, | 79.9, | 213.0, | 1.5); | ( 565441.2, | 4191051.3, | 80.3, | 213.0, | 1.5); |
| ( 565411.2, | 4191061.3, | 79.6, | 213.0, | 1.5); | ( 565421.2, | 4191061.3, | 79.8, | 213.0, | 1.5); |
| ( 565431.2, | 4191061.3, | 80.0, | 213.0, | 1.5); | ( 565441.2, | 4191061.3, | 80.4, | 213.0, | 1.5); |
| ( 565411.2, | 4191071.3, | 79.9, | 213.0, | 1.5); | ( 565421.2, | 4191071.3, | 79.9, | 213.0, | 1.5); |
| ( 565431.2, | 4191071.3, | 80.0, | 213.0, | 1.5); | ( 565441.2, | 4191071.3, | 80.5, | 213.0, | 1.5); |
| ( 565411.2, | 4191081.3, | 80.2, | 213.0, | 1.5); | ( 565421.2, | 4191081.3, | 80.3, | 213.0, | 1.5); |
| ( 565431.2, | 4191081.3, | 80.3, | 213.0, | 1.5); | ( 565441.2, | 4191081.3, | 80.8, | 213.0, | 1.5); |
| ( 565411.2, | 4191091.3, | 80.6, | 213.0, | 1.5); | ( 565421.2, | 4191091.3, | 80.8, | 213.0, | 1.5); |
| ( 565431.2, | 4191091.3, | 81.0, | 213.0, | 1.5); | ( 565441.2, | 4191091.3, | 81.4, | 213.0, | 1.5); |
| ( 565411.2, | 4191101.3, | 81.0, | 213.0, | 1.5); | ( 565421.2, | 4191101.3, | 81.3, | 213.0, | 1.5); |
| ( 565431.2, | 4191101.3, | 81.6, | 213.0, | 1.5); | ( 565441.2, | 4191101.3, | 82.0, | 213.0, | 1.5); |
| ( 565411.2, | 4191111.3, | 81.3, | 213.0, | 1.5); | ( 565421.2, | 4191111.3, | 81.6, | 213.0, | 1.5); |
| ( 565431.2, | 4191111.3, | 81.9, | 213.0, | 1.5); | ( 565441.2, | 4191111.3, | 82.3, | 213.0, | 1.5); |
| ( 565411.2, | 4191121.3, | 81.3, | 213.0, | 1.5); | ( 565421.2, | 4191121.3, | 81.6, | 213.0, | 1.5); |
| ( 565431.2, | 4191121.3, | 81.9, | 213.0, | 1.5); | ( 565441.2, | 4191121.3, | 82.3, | 213.0, | 1.5); |
| ( 565411.2, | 4191131.3, | 81.3, | 213.0, | 1.5); | ( 565421.2, | 4191131.3, | 81.6, | 213.0, | 1.5); |
| ( 565431.2, | 4191131.3, | 81.9, | 213.0, | 1.5); | ( 565441.2, | 4191131.3, | 82.3, | 213.0, | 1.5); |
| ( 565411.2, | 4191041.3, | 79.1, | 213.0, | 6.1); | ( 565421.2, | 4191041.3, | 79.4, | 213.0, | 6.1); |
| ( 565431.2, | 4191041.3, | 79.8, | 213.0, | 6.1); | ( 565441.2, | 4191041.3, | 80.1, | 213.0, | 6.1); |
| ( 565411.2, | 4191051.3, | 79.4, | 213.0, | 6.1); | ( 565421.2, | 4191051.3, | 79.7, | 213.0, | 6.1); |
| ( 565431.2, | 4191051.3, | 79.9, | 213.0, | 6.1); | ( 565441.2, | 4191051.3, | 80.3, | 213.0, | 6.1); |
| ( 565411.2, | 4191061.3, | 79.6, | 213.0, | 6.1); | ( 565421.2, | 4191061.3, | 79.8, | 213.0, | 6.1); |
| ( 565431.2, | 4191061.3, | 80.0, | 213.0, | 6.1); | ( 565441.2, | 4191061.3, | 80.4, | 213.0, | 6.1); |
| ( 565411.2, | 4191071.3, | 79.9, | 213.0, | 6.1); | ( 565421.2, | 4191071.3, | 79.9, | 213.0, | 6.1); |
| ( 565431.2, | 4191071.3, | 80.0, | 213.0, | 6.1); | ( 565441.2, | 4191071.3, | 80.5, | 213.0, | 6.1); |
| ( 565411.2, | 4191081.3, | 80.2, | 213.0, | 6.1); | ( 565421.2, | 4191081.3, | 80.3, | 213.0, | 6.1); |
| ( 565431.2, | 4191081.3, | 80.3, | 213.0, | 6.1); | ( 565441.2, | 4191081.3, | 80.8, | 213.0, | 6.1); |
| ( 565411.2, | 4191091.3, | 80.6, | 213.0, | 6.1); | ( 565421.2, | 4191091.3, | 80.8, | 213.0, | 6.1); |
| ( 565431.2, | 4191091.3, | 81.0, | 213.0, | 6.1); | ( 565441.2, | 4191091.3, | 81.4, | 213.0, | 6.1); |
| ( 565411.2, | 4191101.3, | 81.0, | 213.0, | 6.1); | ( 565421.2, | 4191101.3, | 81.3, | 213.0, | 6.1); |
| ( 565431.2, | 4191101.3, | 81.6, | 213.0, | 6.1); | ( 565441.2, | 4191101.3, | 82.0, | 213.0, | 6.1); |
| ( 565411.2, | 4191111.3, | 81.3, | 213.0, | 6.1); | ( 565421.2, | 4191111.3, | 81.6, | 213.0, | 6.1); |
| ( 565431.2, | 4191111.3, | 81.9, | 213.0, | 6.1); | ( 565441.2, | 4191111.3, | 82.3, | 213.0, | 6.1); |
| ( 565411.2, | 4191121.3, | 81.3, | 213.0, | 6.1); | ( 565421.2, | 4191121.3, | 81.6, | 213.0, | 6.1); |
| ( 565431.2, | 4191121.3, | 81.9, | 213.0, | 6.1); | ( 565441.2, | 4191121.3, | 82.3, | 213.0, | 6.1); |
| ( 565411.2, | 4191131.3, | 81.3, | 213.0, | 6.1); | ( 565421.2, | 4191131.3, | 81.6, | 213.0, | 6.1); |
| ( 565431.2, | 4191131.3, | 81.9, | 213.0, | 6.1); | ( 565441.2, | 4191131.3, | 82.3, | 213.0, | 6.1); |
| ( 565411.2, | 4191041.3, | 79.1, | 213.0, | 9.1); | ( 565421.2, | 4191041.3, | 79.4, | 213.0, | 9.1); |
| ( 565431.2, | 4191041.3, | 79.8, | 213.0, | 9.1); | ( 565441.2, | 4191041.3, | 80.1, | 213.0, | 9.1); |

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( 565411.2, 4191051.3,      79.4,     213.0,       9.1);         ( 565421.2, 4191051.3,      79.7,     213.0,       9.1);
( 565431.2, 4191051.3,      79.9,     213.0,       9.1);         ( 565441.2, 4191051.3,      80.3,     213.0,       9.1);
( 565411.2, 4191061.3,      79.6,     213.0,       9.1);         ( 565421.2, 4191061.3,      79.8,     213.0,       9.1);
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE  95
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                      (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                  (METERS)

    ( 565431.2, 4191061.3,      80.0,     213.0,       9.1);         ( 565441.2, 4191061.3,      80.4,     213.0,       9.1);
    ( 565411.2, 4191071.3,      79.9,     213.0,       9.1);         ( 565421.2, 4191071.3,      79.9,     213.0,       9.1);
    ( 565431.2, 4191071.3,      80.0,     213.0,       9.1);         ( 565441.2, 4191071.3,      80.5,     213.0,       9.1);
    ( 565411.2, 4191081.3,      80.2,     213.0,       9.1);         ( 565421.2, 4191081.3,      80.3,     213.0,       9.1);
    ( 565431.2, 4191081.3,      80.3,     213.0,       9.1);         ( 565441.2, 4191081.3,      80.8,     213.0,       9.1);
    ( 565411.2, 4191091.3,      80.6,     213.0,       9.1);         ( 565421.2, 4191091.3,      80.8,     213.0,       9.1);
    ( 565431.2, 4191091.3,      81.0,     213.0,       9.1);         ( 565441.2, 4191091.3,      81.4,     213.0,       9.1);
    ( 565411.2, 4191101.3,      81.0,     213.0,       9.1);         ( 565421.2, 4191101.3,      81.3,     213.0,       9.1);
    ( 565431.2, 4191101.3,      81.6,     213.0,       9.1);         ( 565441.2, 4191101.3,      82.0,     213.0,       9.1);
    ( 565411.2, 4191111.3,      81.3,     213.0,       9.1);         ( 565421.2, 4191111.3,      81.6,     213.0,       9.1);
    ( 565431.2, 4191111.3,      81.9,     213.0,       9.1);         ( 565441.2, 4191111.3,      82.3,     213.0,       9.1);
    ( 565411.2, 4191121.3,      81.3,     213.0,       9.1);         ( 565421.2, 4191121.3,      81.6,     213.0,       9.1);
    ( 565431.2, 4191121.3,      81.9,     213.0,       9.1);         ( 565441.2, 4191121.3,      82.3,     213.0,       9.1);
    ( 565411.2, 4191131.3,      81.3,     213.0,       9.1);         ( 565421.2, 4191131.3,      81.6,     213.0,       9.1);
    ( 565431.2, 4191131.3,      81.9,     213.0,       9.1);         ( 565441.2, 4191131.3,      82.3,     213.0,       9.1);
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE  96
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                        *** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
                                                          (1=YES; 0=NO)

          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1

              NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.


                                  *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
                                                        (METERS/SEC)

                                      1.54,   3.09,   5.14,   8.23,  10.80,
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE  97
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                  *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

  Surface file:   ..\met data-1.8m\724930\724930.SFC                                                Met Version:  14134
  Profile file:   ..\met data-1.8m\724930\724930.PFL
  Surface format: FREE
  Profile format: FREE
  Surface station no.:    23230                  Upper air station no.:    23230
                 Name: OAKLAND/WSO_AP                              Name: OAKLAND/WSO_AP
                 Year:   2009                                      Year:   2009

First 24 hours of scalar data
YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS   WD     HT  REF TA     HT
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
09 01 01   1 01  -17.2  0.303 -9.000 -9.000 -999.  401.    147.2  0.63   0.86   1.00    2.36   81.   10.0  282.5    2.0
09 01 01   1 02  -21.8  0.383 -9.000 -9.000 -999.  569.    234.6  0.63   0.86   1.00    2.86   68.   10.0  282.0    2.0
09 01 01   1 03  -26.3  0.460 -9.000 -9.000 -999.  749.    337.1  0.63   0.86   1.00    3.36   84.   10.0  280.9    2.0
09 01 01   1 04  -15.4  0.270 -9.000 -9.000 -999.  368.    116.1  0.47   0.86   1.00    2.36   53.   10.0  280.9    2.0
09 01 01   1 05  -26.3  0.460 -9.000 -9.000 -999.  749.    336.3  0.63   0.86   1.00    3.36   73.   10.0  280.4    2.0
09 01 01   1 06  -21.9  0.383 -9.000 -9.000 -999.  573.    232.9  0.63   0.86   1.00    2.86   82.   10.0  280.4    2.0
09 01 01   1 07  -22.0  0.383 -9.000 -9.000 -999.  569.    232.5  0.63   0.86   1.00    2.86   95.   10.0  279.9    2.0
09 01 01   1 08  -11.2  0.196 -9.000 -9.000 -999.  238.     60.6  0.63   0.86   0.76    1.76   73.   10.0  279.9    2.0
09 01 01   1 09   -2.2 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.45   0.86   0.39    0.00    0.   10.0  280.4    2.0
09 01 01   1 10    6.8  0.266  0.264  0.016   98.  329.   -250.8  0.63   0.86   0.27    1.76   91.   10.0  280.9    2.0
09 01 01   1 11   15.5 -9.000 -9.000 -9.000  177. -999. -99999.0  0.45   0.86   0.22    0.00    0.   10.0  282.0    2.0
09 01 01   1 12   96.1  0.393  1.019  0.014  401.  591.    -57.4  0.22   0.86   0.21    3.36  266.   10.0  281.4    2.0
09 01 01   1 13  102.5  0.395  1.092  0.014  462.  595.    -54.4  0.22   0.86   0.20    3.36  283.   10.0  282.0    2.0
09 01 01   1 14   89.9  0.297  1.066  0.015  489.  394.    -26.5  0.22   0.86   0.21    2.36  249.   10.0  282.0    2.0
09 01 01   1 15   62.1  0.383  0.954  0.014  507.  569.    -82.1  0.22   0.86   0.24    3.36  242.   10.0  282.5    2.0
09 01 01   1 16   23.1  0.665  0.690  0.006  513. 1300.  -1150.4  0.52   0.86   0.33    4.86  304.   10.0  282.5    2.0
09 01 01   1 17  -37.0  0.486 -9.000 -9.000 -999.  846.    280.6  0.22   0.86   0.56    4.86  291.   10.0  281.4    2.0
09 01 01   1 18  -52.2  0.480 -9.000 -9.000 -999.  799.    191.9  0.52   0.86   1.00    3.86  307.   10.0  280.9    2.0
09 01 01   1 19  -25.6  0.224 -9.000 -9.000 -999.  327.     39.8  0.52   0.86   1.00    2.36  334.   10.0  280.4    2.0
09 01 01   1 20  -11.1  0.119 -9.000 -9.000 -999.  115.     13.8  0.52   0.86   1.00    1.76  317.   10.0  280.4    2.0
09 01 01   1 21  -10.3  0.119 -9.000 -9.000 -999.   98.     14.7  0.52   0.86   1.00    1.76  320.   10.0  280.4    2.0
09 01 01   1 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.45   0.86   1.00    0.00    0.   10.0  280.9    2.0
09 01 01   1 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.45   0.86   1.00    0.00    0.   10.0  281.4    2.0
09 01 01   1 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.45   0.86   1.00    0.00    0.   10.0  281.4    2.0


First hour of profile data
YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
09 01 01 01   10.0 1   81.    2.36   282.6   99.0  -99.00  -99.00

F indicates top of profile (=1) or below (=0)
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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE  98
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                         *** THE PERIOD ( 43872 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: ONSITE   ***
                             INCLUDING SOURCE(S):     PAREA1      ,

                                        *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                   ** CONC OF OTHER    IN MICROGRAMS/M**3                          **
```

| X-COORD (M) | Y-COORD (M) | CONC | | X-COORD (M) | Y-COORD (M) | CONC |
|---|---|---|---|---|---|---|
| 565411.24 | 4191041.30 | 1.49813 | | 565421.24 | 4191041.30 | 1.57261 |
| 565431.24 | 4191041.30 | 1.64074 | | 565441.24 | 4191041.30 | 1.69878 |
| 565411.24 | 4191051.30 | 1.81169 | | 565421.24 | 4191051.30 | 1.89405 |
| 565431.24 | 4191051.30 | 1.96873 | | 565441.24 | 4191051.30 | 2.02813 |
| 565411.24 | 4191061.30 | 2.20880 | | 565421.24 | 4191061.30 | 2.30546 |
| 565431.24 | 4191061.30 | 2.38630 | | 565441.24 | 4191061.30 | 2.43925 |
| 565411.24 | 4191071.30 | 2.72610 | | 565421.24 | 4191071.30 | 2.83126 |
| 565431.24 | 4191071.30 | 2.91330 | | 565441.24 | 4191071.30 | 2.95163 |
| 565411.24 | 4191081.30 | 3.39189 | | 565421.24 | 4191081.30 | 3.49473 |
| 565431.24 | 4191081.30 | 3.56558 | | 565441.24 | 4191081.30 | 3.57995 |
| 565411.24 | 4191091.30 | 4.25457 | | 565421.24 | 4191091.30 | 4.33352 |
| 565431.24 | 4191091.30 | 4.37144 | | 565441.24 | 4191091.30 | 4.34832 |
| 565411.24 | 4191101.30 | 5.38605 | | 565421.24 | 4191101.30 | 5.41426 |
| 565431.24 | 4191101.30 | 5.39034 | | 565441.24 | 4191101.30 | 5.30330 |
| 565411.24 | 4191111.30 | 6.91596 | | 565421.24 | 4191111.30 | 6.85400 |
| 565431.24 | 4191111.30 | 6.72375 | | 565441.24 | 4191111.30 | 6.52329 |
| 565411.24 | 4191121.30 | 9.03069 | | 565421.24 | 4191121.30 | 8.81616 |
| 565431.24 | 4191121.30 | 8.50375 | | 565441.24 | 4191121.30 | 8.09436 |
| 565411.24 | 4191131.30 | 11.97374 | **<-Max Exposed Receptor** | 565421.24 | 4191131.30 | 11.48700 |
| 565431.24 | 4191131.30 | 10.83830 | | 565441.24 | 4191131.30 | 10.05331 |
| 565411.24 | 4191041.30 | 1.34345 | | 565421.24 | 4191041.30 | 1.42458 |
| 565431.24 | 4191041.30 | 1.49864 | | 565441.24 | 4191041.30 | 1.56336 |
| 565411.24 | 4191051.30 | 1.62152 | | 565421.24 | 4191051.30 | 1.71400 |
| 565431.24 | 4191051.30 | 1.79646 | | 565441.24 | 4191051.30 | 1.86472 |
| 565411.24 | 4191061.30 | 1.97614 | | 565421.24 | 4191061.30 | 2.08186 |
| 565431.24 | 4191061.30 | 2.17352 | | 565441.24 | 4191061.30 | 2.23862 |
| 565411.24 | 4191071.30 | 2.42899 | | 565421.24 | 4191071.30 | 2.54736 |
| 565431.24 | 4191071.30 | 2.64532 | | 565441.24 | 4191071.30 | 2.70051 |
| 565411.24 | 4191081.30 | 3.00130 | | 565421.24 | 4191081.30 | 3.12414 |
| 565431.24 | 4191081.30 | 3.21871 | | 565441.24 | 4191081.30 | 3.25702 |
| 565411.24 | 4191091.30 | 3.72308 | | 565421.24 | 4191091.30 | 3.83264 |
| 565431.24 | 4191091.30 | 3.90575 | | 565441.24 | 4191091.30 | 3.91886 |
| 565411.24 | 4191101.30 | 4.63627 | | 565421.24 | 4191101.30 | 4.71344 |
| 565431.24 | 4191101.30 | 4.74454 | | 565441.24 | 4191101.30 | 4.71596 |
| 565411.24 | 4191111.30 | 5.82248 | | 565421.24 | 4191111.30 | 5.84452 |
| 565431.24 | 4191111.30 | 5.80743 | | 565441.24 | 4191111.30 | 5.70639 |
| 565411.24 | 4191121.30 | 7.38017 | | 565421.24 | 4191121.30 | 7.31777 |

| | | | | | |
|---|---|---|---|---|---|
| 565431.24 | 4191121.30 | 7.17447 | 565441.24 | 4191121.30 | 6.94220 |
| 565411.24 | 4191131.30 | 9.38601 | 565421.24 | 4191131.30 | 9.18318 |
| 565431.24 | 4191131.30 | 8.85750 | 565441.24 | 4191131.30 | 8.40455 |

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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE  99
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                         *** THE PERIOD ( 43872 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: ONSITE   ***
                             INCLUDING SOURCE(S):     PAREA1      ,

                                      *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                  ** CONC OF OTHER    IN MICROGRAMS/M**3                          **
```

| X-COORD (M) | Y-COORD (M) | CONC | X-COORD (M) | Y-COORD (M) | CONC |
|---|---|---|---|---|---|
| 565411.24 | 4191041.30 | 1.23214 | 565421.24 | 4191041.30 | 1.31366 |
| 565431.24 | 4191041.30 | 1.38895 | 565441.24 | 4191041.30 | 1.45573 |
| 565411.24 | 4191051.30 | 1.48188 | 565421.24 | 4191051.30 | 1.57559 |
| 565431.24 | 4191051.30 | 1.66042 | 565441.24 | 4191051.30 | 1.73201 |
| 565411.24 | 4191061.30 | 1.79734 | 565421.24 | 4191061.30 | 1.90602 |
| 565431.24 | 4191061.30 | 2.00221 | 565441.24 | 4191061.30 | 2.07233 |
| 565411.24 | 4191071.30 | 2.19471 | 565421.24 | 4191071.30 | 2.31899 |
| 565431.24 | 4191071.30 | 2.42507 | 565441.24 | 4191071.30 | 2.48815 |
| 565411.24 | 4191081.30 | 2.68602 | 565421.24 | 4191081.30 | 2.81920 |
| 565431.24 | 4191081.30 | 2.92710 | 565441.24 | 4191081.30 | 2.97870 |
| 565411.24 | 4191091.30 | 3.28798 | 565421.24 | 4191091.30 | 3.41461 |
| 565431.24 | 4191091.30 | 3.50883 | 565441.24 | 4191091.30 | 3.54564 |
| 565411.24 | 4191101.30 | 4.02327 | 565421.24 | 4191101.30 | 4.13017 |
| 565431.24 | 4191101.30 | 4.19661 | 565441.24 | 4191101.30 | 4.20884 |
| 565411.24 | 4191111.30 | 4.94414 | 565421.24 | 4191111.30 | 5.01925 |
| 565431.24 | 4191111.30 | 5.04327 | 565441.24 | 4191111.30 | 5.01177 |
| 565411.24 | 4191121.30 | 6.09736 | 565421.24 | 4191121.30 | 6.12990 |
| 565431.24 | 4191121.30 | 6.09466 | 565441.24 | 4191121.30 | 5.98317 |
| 565411.24 | 4191131.30 | 7.47524 | 565421.24 | 4191131.30 | 7.44383 |
| 565431.24 | 4191131.30 | 7.31536 | 565441.24 | 4191131.30 | 7.07816 |

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*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE 100
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                          *** THE PERIOD ( 43872 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: HAUL     ***
                              INCLUDING SOURCE(S):     L0000001    , L0000002    , L0000003    , L0000004    , L0000005    ,
               L0000006    , L0000007    , L0000008    , L0000009    , L0000010    , L0000011    , L0000012    , L0000013    ,
               L0000014    , L0000015    , L0000016    , L0000017    , L0000018    , L0000019    , L0000020    , L0000021    ,
               L0000022    , L0000023    , L0000024    , L0000025    , L0000026    , L0000027    , L0000028    ,  . . .      ,

                                       *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                  ** CONC OF OTHER    IN MICROGRAMS/M**3                          **
```

| X-COORD (M) | Y-COORD (M) | CONC | | X-COORD (M) | Y-COORD (M) | CONC |
|---|---|---|---|---|---|---|
| 565411.24 | 4191041.30 | 1.79383 | | 565421.24 | 4191041.30 | 1.74541 |
| 565431.24 | 4191041.30 | 1.69761 | | 565441.24 | 4191041.30 | 1.64834 |
| 565411.24 | 4191051.30 | 2.02663 | | 565421.24 | 4191051.30 | 1.96809 |
| 565431.24 | 4191051.30 | 1.90905 | | 565441.24 | 4191051.30 | 1.84719 |
| 565411.24 | 4191061.30 | 2.31266 | | 565421.24 | 4191061.30 | 2.23969 |
| 565431.24 | 4191061.30 | 2.16595 | | 565441.24 | 4191061.30 | 2.08612 |
| 565411.24 | 4191071.30 | 2.66959 | | 565421.24 | 4191071.30 | 2.57715 |
| 565431.24 | 4191071.30 | 2.48131 | | 565441.24 | 4191071.30 | 2.37692 |
| 565411.24 | 4191081.30 | 3.12104 | | 565421.24 | 4191081.30 | 2.99890 |
| 565431.24 | 4191081.30 | 2.87079 | | 565441.24 | 4191081.30 | 2.73115 |
| 565411.24 | 4191091.30 | 3.71221 | | 565421.24 | 4191091.30 | 3.54172 |
| 565431.24 | 4191091.30 | 3.36400 | | 565441.24 | 4191091.30 | 3.16951 |
| 565411.24 | 4191101.30 | 4.52394 | | 565421.24 | 4191101.30 | 4.26474 |
| 565431.24 | 4191101.30 | 3.99429 | | 565441.24 | 4191101.30 | 3.72659 |
| 565411.24 | 4191111.30 | 5.72878 | | 565421.24 | 4191111.30 | 5.31971 |
| 565431.24 | 4191111.30 | 4.90812 | | 565441.24 | 4191111.30 | 4.51685 |
| 565411.24 | 4191121.30 | 7.74938 | | 565421.24 | 4191121.30 | 7.06125 |
| 565431.24 | 4191121.30 | 6.35044 | | 565441.24 | 4191121.30 | 5.68277 |
| 565411.24 | 4191131.30 | 11.37102 | ←Max Exposed Receptor | 565421.24 | 4191131.30 | 10.09922 |
| 565431.24 | 4191131.30 | 8.68686 | | 565441.24 | 4191131.30 | 7.40951 |
| 565411.24 | 4191041.30 | 1.63625 | | 565421.24 | 4191041.30 | 1.59593 |
| 565431.24 | 4191041.30 | 1.55760 | | 565441.24 | 4191041.30 | 1.51807 |
| 565411.24 | 4191051.30 | 1.83212 | | 565421.24 | 4191051.30 | 1.78673 |
| 565431.24 | 4191051.30 | 1.73968 | | 565441.24 | 4191051.30 | 1.69363 |
| 565411.24 | 4191061.30 | 2.06997 | | 565421.24 | 4191061.30 | 2.01731 |
| 565431.24 | 4191061.30 | 1.96323 | | 565441.24 | 4191061.30 | 1.90325 |
| 565411.24 | 4191071.30 | 2.35860 | | 565421.24 | 4191071.30 | 2.29502 |
| 565431.24 | 4191071.30 | 2.23386 | | 565441.24 | 4191071.30 | 2.15324 |
| 565411.24 | 4191081.30 | 2.70523 | | 565421.24 | 4191081.30 | 2.62985 |
| 565431.24 | 4191081.30 | 2.55281 | | 565441.24 | 4191081.30 | 2.45101 |
| 565411.24 | 4191091.30 | 3.13081 | | 565421.24 | 4191091.30 | 3.02698 |
| 565431.24 | 4191091.30 | 2.91849 | | 565441.24 | 4191091.30 | 2.78766 |
| 565411.24 | 4191101.30 | 3.67158 | | 565421.24 | 4191101.30 | 3.51269 |
| 565431.24 | 4191101.30 | 3.36634 | | 565441.24 | 4191101.30 | 3.21899 |

| | | | | | |
|---|---|---|---|---|---|
| 565411.24 | 4191111.30 | 4.41237 | 565421.24 | 4191111.30 | 4.19439 |
| 565431.24 | 4191111.30 | 3.99358 | 565441.24 | 4191111.30 | 3.80072 |
| 565411.24 | 4191121.30 | 5.55281 | 565421.24 | 4191121.30 | 5.22525 |
| 565431.24 | 4191121.30 | 4.92409 | 565441.24 | 4191121.30 | 4.62627 |
| 565411.24 | 4191131.30 | 7.60331 | 565421.24 | 4191131.30 | 6.99949 |
| 565431.24 | 4191131.30 | 6.40206 | 565441.24 | 4191131.30 | 5.80021 |

```
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE 101
*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                          *** THE PERIOD ( 43872 HRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: HAUL     ***
                              INCLUDING SOURCE(S):     L0000001    , L0000002    , L0000003    , L0000004    , L0000005    ,
               L0000006    , L0000007    , L0000008    , L0000009    , L0000010    , L0000011    , L0000012    , L0000013    ,
               L0000014    , L0000015    , L0000016    , L0000017    , L0000018    , L0000019    , L0000020    , L0000021    ,
               L0000022    , L0000023    , L0000024    , L0000025    , L0000026    , L0000027    , L0000028    ,  . . .      ,
```

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

| X-COORD (M) | Y-COORD (M) | CONC | X-COORD (M) | Y-COORD (M) | CONC |
|---|---|---|---|---|---|
| 565411.24 | 4191041.30 | 1.51463 | 565421.24 | 4191041.30 | 1.48303 |
| 565431.24 | 4191041.30 | 1.45178 | 565441.24 | 4191041.30 | 1.42032 |
| 565411.24 | 4191051.30 | 1.68615 | 565421.24 | 4191051.30 | 1.64942 |
| 565431.24 | 4191051.30 | 1.61335 | 565441.24 | 4191051.30 | 1.57590 |
| 565411.24 | 4191061.30 | 1.88780 | 565421.24 | 4191061.30 | 1.84722 |
| 565431.24 | 4191061.30 | 1.80738 | 565441.24 | 4191061.30 | 1.75936 |
| 565411.24 | 4191071.30 | 2.12570 | 565421.24 | 4191071.30 | 2.08145 |
| 565431.24 | 4191071.30 | 2.03711 | 565441.24 | 4191071.30 | 1.97573 |
| 565411.24 | 4191081.30 | 2.40157 | 565421.24 | 4191081.30 | 2.34917 |
| 565431.24 | 4191081.30 | 2.29619 | 565441.24 | 4191081.30 | 2.22180 |
| 565411.24 | 4191091.30 | 2.72162 | 565421.24 | 4191091.30 | 2.65144 |
| 565431.24 | 4191091.30 | 2.58233 | 565441.24 | 4191091.30 | 2.49832 |
| 565411.24 | 4191101.30 | 3.09903 | 565421.24 | 4191101.30 | 3.00493 |
| 565431.24 | 4191101.30 | 2.91540 | 565441.24 | 4191101.30 | 2.82247 |
| 565411.24 | 4191111.30 | 3.58019 | 565421.24 | 4191111.30 | 3.45598 |
| 565431.24 | 4191111.30 | 3.34170 | 565441.24 | 4191111.30 | 3.23489 |
| 565411.24 | 4191121.30 | 4.23841 | 565421.24 | 4191121.30 | 4.07408 |
| 565431.24 | 4191121.30 | 3.92759 | 565441.24 | 4191121.30 | 3.78577 |
| 565411.24 | 4191131.30 | 5.20937 | 565421.24 | 4191131.30 | 4.96511 |
| 565431.24 | 4191131.30 | 4.73950 | 565441.24 | 4191131.30 | 4.49829 |

```
 *** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
 *** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE 102
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

                                     *** THE SUMMARY OF MAXIMUM PERIOD ( 43872 HRS) RESULTS ***


                                  ** CONC OF OTHER    IN MICROGRAMS/M**3                          **

                                                                                                                NETWORK
GROUP ID                        AVERAGE CONC                RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                 Maximum Exposed Student Receptor Location
ONSITE    1ST HIGHEST VALUE IS      11.97374 AT (  565411.24,  4191131.30,    81.26,   213.00,    1.50)  DC
          2ND HIGHEST VALUE IS      11.48700 AT (  565421.24,  4191131.30,    81.59,   213.00,    1.50)  DC
          3RD HIGHEST VALUE IS      10.83830 AT (  565431.24,  4191131.30,    81.93,   213.00,    1.50)  DC
          4TH HIGHEST VALUE IS      10.05331 AT (  565441.24,  4191131.30,    82.26,   213.00,    1.50)  DC
          5TH HIGHEST VALUE IS       9.38601 AT (  565411.24,  4191131.30,    81.26,   213.00,    6.10)  DC
          6TH HIGHEST VALUE IS       9.18318 AT (  565421.24,  4191131.30,    81.59,   213.00,    6.10)  DC
          7TH HIGHEST VALUE IS       9.03069 AT (  565411.24,  4191121.30,    81.26,   213.00,    1.50)  DC
          8TH HIGHEST VALUE IS       8.85750 AT (  565431.24,  4191131.30,    81.93,   213.00,    6.10)  DC
          9TH HIGHEST VALUE IS       8.81616 AT (  565421.24,  4191121.30,    81.59,   213.00,    1.50)  DC
         10TH HIGHEST VALUE IS       8.50375 AT (  565431.24,  4191121.30,    81.93,   213.00,    1.50)  DC

HAUL      1ST HIGHEST VALUE IS      11.37102 AT (  565411.24,  4191131.30,    81.26,   213.00,    1.50)  DC
          2ND HIGHEST VALUE IS      10.09922 AT (  565421.24,  4191131.30,    81.59,   213.00,    1.50)  DC
          3RD HIGHEST VALUE IS       8.68686 AT (  565431.24,  4191131.30,    81.93,   213.00,    1.50)  DC
          4TH HIGHEST VALUE IS       7.74938 AT (  565411.24,  4191121.30,    81.26,   213.00,    1.50)  DC
          5TH HIGHEST VALUE IS       7.60331 AT (  565411.24,  4191131.30,    81.26,   213.00,    6.10)  DC
          6TH HIGHEST VALUE IS       7.40951 AT (  565441.24,  4191131.30,    82.26,   213.00,    1.50)  DC
          7TH HIGHEST VALUE IS       7.06125 AT (  565421.24,  4191121.30,    81.59,   213.00,    1.50)  DC
          8TH HIGHEST VALUE IS       6.99949 AT (  565421.24,  4191131.30,    81.59,   213.00,    6.10)  DC
          9TH HIGHEST VALUE IS       6.40206 AT (  565431.24,  4191131.30,    81.93,   213.00,    6.10)  DC
         10TH HIGHEST VALUE IS       6.35044 AT (  565431.24,  4191121.30,    81.93,   213.00,    1.50)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
```

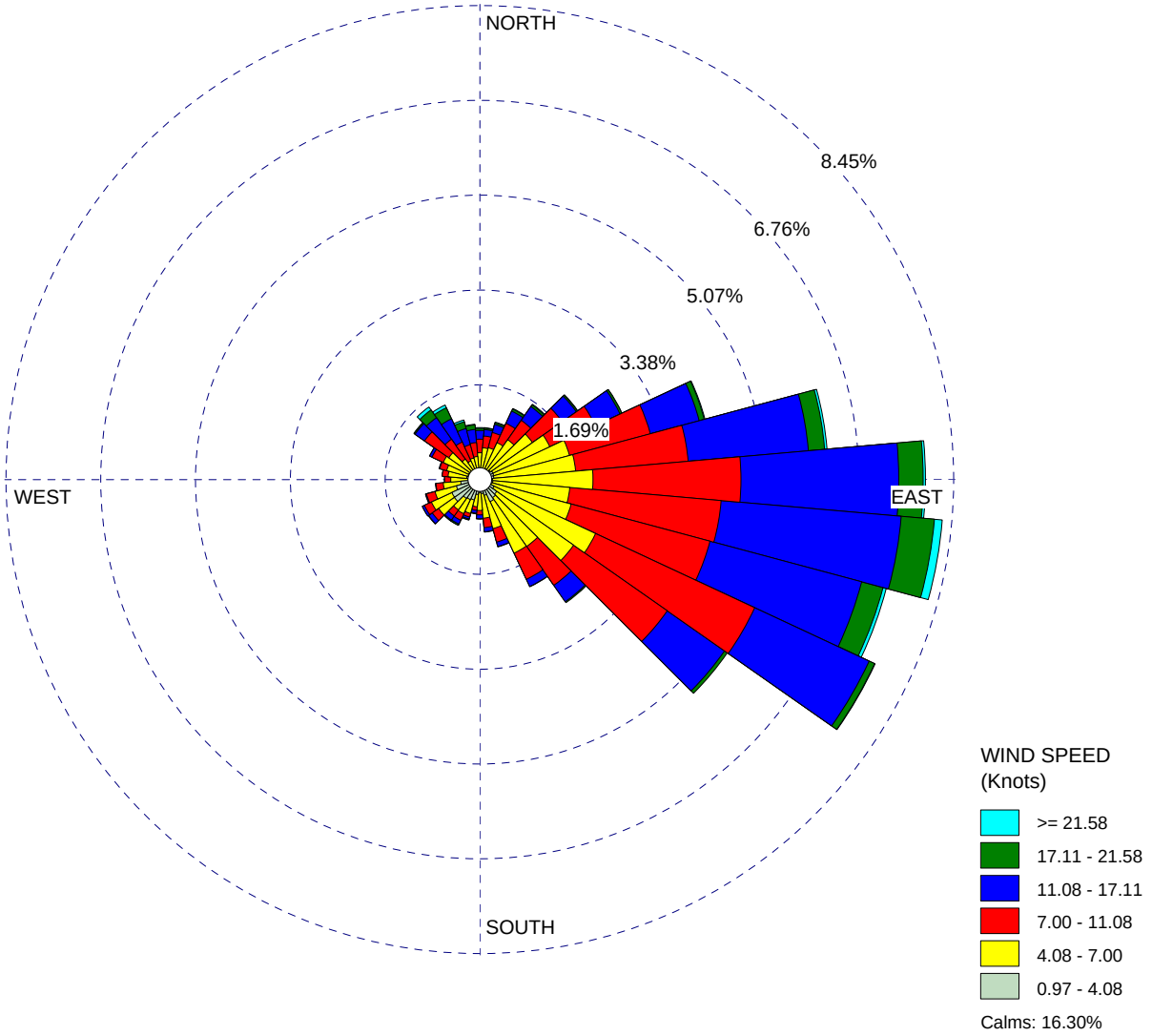
```
*** AERMOD - VERSION  19191 ***   *** Construction HRA - UCB-01: People's Park: Rose Waldorf School        ***        11/21/20
*** AERMET - VERSION  14134 ***   *** City of Berkeley                                                      ***        14:18:30
                                                                                                                        PAGE 103

*** MODELOPTs:    RegDFAULT  CONC  ELEV  FLGPOL  URBAN

*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            0 Warning Message(s)
A Total of         7953 Informational Message(s)

A Total of        43872 Hours Were Processed

A Total of         7152 Calm Hours Identified

A Total of          801 Missing Hours Identified (  1.83 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ************************************
   *** AERMOD Finishes Successfully ***
   ************************************
```

WIND ROSE PLOT:

**Station #23230 - OAKLAND/WSO AP, CA**

DISPLAY:

**Wind Speed**
**Flow Vector (blowing to)**




| COMMENTS: | DATA PERIOD: | COMPANY NAME: | |
|---|---|---|---|
| | **Start Date: 1/1/2009 - 00:00**<br>**End Date: 1/2/2014 - 23:59** | MODELER: | |
| | CALM WINDS:<br>**16.30%** | TOTAL COUNT:<br>**43349 hrs.** | |
| | AVG. WIND SPEED:<br>**7.34 Knots** | DATE:<br>**10/27/2020** | PROJECT NO.: |

WRPLOT View - Lakes Environmental Software

# Appendix C. Construction Risk Calculations

# Table C1
# Residential Concentrations for Risk Calculations

| Contaminant ( a ) | Source ( b ) | | Model Output [1] (µg/m$^3$) ( c ) | Emission Rates [2] (g/s) ( d ) | MEIR Conc. (µg/m$^3$) ( e ) | Total MEIR Conc. Annual Average (µg/m$^3$) ( f ) |
|---|---|---|---|---|---|---|
| **Residential Receptors - Unmitigated** | | | | | | |
| DPM | 2023 | On-Site Emissions | 10.87 | 1.03E-02 | 1.12E-01 | 1.12E-01 |
| | | Truck Route | 10.74 | 7.66E-06 | 8.23E-05 | |
| | 2024 | On-Site Emissions | 10.87 | 4.79E-03 | 5.20E-02 | 5.21E-02 |
| | | Truck Route | 10.74 | 2.54E-06 | 2.73E-05 | |
| Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations | | | | | | |
| $PM_{2.5}$ | 2023 | On-Site Emissions | 10.87 | 9.83E-03 | 1.07E-01 | 1.07E-01 |
| | | Truck Route | 10.74 | 7.14E-06 | 7.67E-05 | |
| | 2024 | On-Site Emissions | 10.87 | 4.54E-03 | 4.93E-02 | 4.93E-02 |
| | | Truck Route | 10.74 | 2.40E-06 | 2.57E-05 | |
| | | | | **Maximum Annual $PM_{2.5}$ Concentration** | | **0.11** |
| **Residential Receptors - Mitigated Run: Tier 4 Interim Engines for eq. > 50 HP (Building Const Activity)** | | | | | | |
| DPM | 2023 | On-Site Emissions | 10.87 | 3.64E-03 | 3.96E-02 | 3.97E-02 |
| | | Truck Route | 10.74 | 7.66E-06 | 8.23E-05 | |
| | 2024 | On-Site Emissions | 10.87 | 2.72E-03 | 2.96E-02 | 2.96E-02 |
| | | Truck Route | 10.74 | 2.54E-06 | 2.73E-05 | |
| Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations | | | | | | |
| $PM_{2.5}$ | 2023 | On-Site Emissions | 10.87 | 3.59E-03 | 3.91E-02 | 3.92E-02 |
| | | Truck Route | 10.74 | 7.14E-06 | 7.67E-05 | |
| | 2024 | On-Site Emissions | 10.87 | 2.60E-03 | 2.83E-02 | 2.83E-02 |
| | | Truck Route | 10.74 | 2.40E-06 | 2.57E-05 | |
| | | | | **Maximum Annual $PM_{2.5}$ Concentration** | | **0.04** |

Maximum Exposed Individual Resident (MEIR) UTM coordinates: 565355.64E, 4191123.57N

[1] Model Output at the MEIR based on unit emission rates for sources (1 g/s).

[2] Emission Rates from Emission Rate Calculations (Appendix A - Construction Emissions).

# Table C2
# Residential Health Risk Calculations

| Source | | MEIR Conc. ($\mu g/m^3$) | Weight Fraction | Contaminant | URF $(\mu g/m^3)^{-1}$ | CPF $(mg/kg/day)^{-1}$ | Dose (by age bin) 3rd Trimester (mg/kg-day) | Dose (by age bin) 0 < 2 years (mg/kg-day) | Carcinogenic Risks (by age bin) 3rd Trimester per million | Carcinogenic Risks (by age bin) 0 < 2 years per million | **Total Cancer Risk** per million | **Chronic Hazards [3]** REL ($\mu g/m^3$) | **Chronic Hazards [3]** RESP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ( a ) | | ( b ) | ( c ) | ( d ) | ( e ) | ( f ) | ( g ) | ( h ) | ( j ) | ( k ) | ( m ) | ( n ) | ( o ) |
| **Residential Receptors - Unmitigated** | | | | | | | | | | | | | |
| 2023 | On & Off-Site Emissions | 1.12E-01 | 1.00E+00 | DPM | 3.0E-04 | 1.1E+00 | 3.87E-05 | 1.17E-04 | 1.23E+00 | 7.45E+00 | 8.7 | 5.0E+00 | 2.24E-02 |
| 2024 | | 5.21E-02 | | | | | | 5.44E-05 | | 3.65E+00 | 3.7 | | 1.04E-02 |
| | | | | | | | | | | | **12.3** | | **0.033** |
| **Residential Receptors - Mitigated Run: Tier 4 Interim Engines for eq. > 50 HP (Building Const Activity)** | | | | | | | | | | | | | |
| 2023 | On & Off-Site Emissions | 3.97E-02 | 1.00E+00 | DPM | 3.0E-04 | 1.1E+00 | 1.37E-05 | 4.15E-05 | 4.38E-01 | 2.64E+00 | 3.1 | 5.0E+00 | 7.94E-03 |
| 2024 | | 2.96E-02 | | | | | | 3.09E-05 | | 2.08E+00 | 2.1 | | 5.92E-03 |
| | | | | | | | | | | | **5.2** | | **0.014** |

Maximum Exposed Individual Resident (MEIR) UTM coordinates: 565355.64E, 4191123.57N

| | | | |
|---|---|---|---|
| | OEHHA age bin | 3rd Trimester | 0 < 2 years |
| | exposure year(s) | 2023 | 2023-2024 |
| Dose Exposure Factors: | exposure frequency (days/year) | 350 | 350 |
| | inhalation rate (L/kg-day) [1] | 361 | 1090 |
| | inhalation absorption factor | 1 | 1 |
| | conversion factor (mg/µg; $m^3$/L) | 1.0E-06 | 1.0E-06 |
| Risk Calculation Factors: | age sensitivity factor | 10 | 10 |
| | averaging time (years) | 70 | 70 |
| | per million | 1.0E+06 | 1.0E+06 |
| | fraction of time at home | 0.85 | 0.85 |

| exposure durations per age bin | | | exposure durations (year) | |
|---|---|---|---|---|
| | Construction Year | Risk Scalar [2] | 3rd Trimester | 0 < 2 years |
| | 2023 | 0.75 | 0.25 | 0.50 |
| | 2024 | 0.53 | | 0.53 |
| | Total | 1.28 | 0.25 | 1.03 |

[1] Inhalation rate taken as the 95th percentile breathing rates (OEHHA, 2015).

[2] Risk scalar determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App A - Construction Emissions).

[3] Chronic Hazards for DPM using the chronic reference exposure level (REL) for the Respiratory Toxicological Endpoint.

# Table C3
# Cornerstone Children's Center Concentrations for Risk Calculations

| Contaminant | | Source | Model Output [1] ($\mu g/m^3$) | Emission Rates [2] (g/s) | MER Conc. ($\mu g/m^3$) | Total MER Conc. Annual Average ($\mu g/m^3$) |
|---|---|---|---|---|---|---|
| ( a ) | | ( b ) | ( c ) | ( d ) | ( e ) | ( f ) |
| **Day Care Receptors - Unmitigated** | | | | | | |
| DPM | 2023 | On-Site Emissions | 0.31 | 1.03E-02 | 3.21E-03 | 3.22E-03 |
| | | Truck Route | 1.33 | 7.66E-06 | 1.02E-05 | |
| | 2024 | On-Site Emissions | 0.31 | 4.79E-03 | 1.50E-03 | 1.50E-03 |
| | | Truck Route | 1.33 | 2.54E-06 | 3.38E-06 | |
| Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations | | | | | | |
| $PM_{2.5}$ | 2023 | On-Site Emissions | 0.31 | 9.83E-03 | 3.07E-03 | 3.08E-03 |
| | | Truck Route | 1.33 | 7.14E-06 | 9.50E-06 | |
| | 2024 | On-Site Emissions | 0.31 | 4.54E-03 | 1.42E-03 | 1.42E-03 |
| | | Truck Route | 1.33 | 2.40E-06 | 3.19E-06 | |
| | | | **Maximum Annual $PM_{2.5}$ Concentration** | | | **0.003** |

Cornerstone Children's Center UTM coordinates: 565051.32E, 4191269.40N

[1] Model Output at the Maximum Exposed Receptor (MER) based on unit emission rates for sources (1 g/s).

[2] Emission Rates from Emission Rate Calculations (Appendix A - Construction Emissions).

# Table C4
# Cornerstone Children's Center Health Risk Calculations

| Source | | MER Conc. ($\mu g/m^3$) | Weight Fraction | Contaminant | URF ($\mu g/m^3)^{-1}$ | CPF $(mg/kg/day)^{-1}$ | Dose (by age bin) Day Care 0 < 2 years (mg/kg-day) | Dose (by age bin) Staff 16 < 70 years (mg/kg-day) | Carcinogenic Risks (by age bin) Day Care 0 < 2 years per million | Carcinogenic Risks (by age bin) Staff 16 < 70 years per million | **Chronic Hazards [1]** REL ($\mu g/m^3$) | **Chronic Hazards [1]** RESP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ( a ) | | ( b ) | ( c ) | ( d ) | ( e ) | ( f ) | ( g ) | ( h ) | ( j ) | ( k ) | ( n ) | ( o ) |
| **Day Care Receptors - Unmitigated** | | | | | | | | | | | | |
| 2023 | On & Off-Site Emission | 3.22E-03 | 1.00E+00 | DPM | 3.0E-04 | 1.1E+00 | 2.41E-06 | 5.08E-07 | 2.71E-01 | 5.71E-03 | 5.0E+00 | 6.45E-04 |
| 2024 | | 1.50E-03 | | | | | 1.12E-06 | 2.36E-07 | 8.84E-02 | 1.88E-03 | | 3.00E-04 |
| Cornerstone Children's Center UTM coordinates: 565051.32E, 4191269.40N | | | | | | | | **Total** | **0.36** | **0.01** | | **0.001** |

| | | Day Care | Staff |
|---|---|---|---|
| | OEHHA age bin | 0 < 2 years | 16<70 years |
| | exposure year(s) | 2023-2024 | 2023-2024 |
| Dose Exposure Factors: | exposure frequency (days/year) [2] | 250 | 250 |
| | 8-hour inhalation rate (L/kg-day) [3] | 1090 | 230 |
| | inhalation absorption factor | 1 | 1 |
| | conversion factor (mg/µg; $m^3$/L) | 1.0E-06 | 1.0E-06 |
| Risk Calculation Factors: | age sensitivity factor | 10 | 1 |
| | averaging time (years) | 70 | 70 |
| | per million | 1.0E+06 | 1.0E+06 |

| exposure durations per age bin | | | exposure durations (year) | |
|---|---|---|---|---|
| | Construction Year | Risk Scalar [4] | Students | Staff |
| | 2023 | 0.75 | 0.75 | 0.75 |
| | 2024 | 0.53 | 0.53 | 0.53 |
| | Total | 1.28 | 1.28 | 1.28 |

[1] Chronic Hazards for DPM using the chronic reference exposure level (REL) for the Respiratory Toxicological Endpoint.

[2] Office of Environmental Health Hazard Assessment. *Guidance for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(f): Guidance for Assessing Exposures and Health Risks at Existing and Proposed School Sites* . Dated February, 2004.

[3] Inhalation rate taken as the 8-hour 95th percentile breathing rates, Moderate Activity (OEHHA, 2015).

[4] Risk scalar determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App A - Construction

# Table C5
# Berkeley Rose Waldorf School Concentrations for Risk Calculations

| Contaminant | Source | | Model Output [1] ($\mu g/m^3$) | Emission Rates [2] (g/s) | MER Conc. ($\mu g/m^3$) | Total MER Conc. Annual Average ($\mu g/m^3$) |
|---|---|---|---|---|---|---|
| ( a ) | ( b ) | | ( c ) | ( d ) | ( e ) | ( f ) |
| **Day Care Receptors - Unmitigated** | | | | | | |
| DPM | 2023 | On-Site Emissions | 11.97 | 1.03E-02 | 1.23E-01 | 1.23E-01 |
| | | Truck Route | 11.37 | 7.66E-06 | 8.71E-05 | |
| | 2024 | On-Site Emissions | 11.97 | 4.79E-03 | 5.73E-02 | 5.73E-02 |
| | | Truck Route | 11.37 | 2.54E-06 | 2.89E-05 | |
| Total DPM concentrations used for Cancer Risk and Chronic Hazard calculations | | | | | | |
| $PM_{2.5}$ | 2023 | On-Site Emissions | 11.97 | 9.83E-03 | 1.18E-01 | 1.18E-01 |
| | | Truck Route | 11.37 | 7.14E-06 | 8.12E-05 | |
| | 2024 | On-Site Emissions | 11.97 | 4.54E-03 | 5.43E-02 | 5.43E-02 |
| | | Truck Route | 11.37 | 2.40E-06 | 2.73E-05 | |
| | | | | **Maximum Annual $PM_{2.5}$ Concentration** | | **0.12** |

Berkeley Rose Waldorf School UTM coordinates: 565411.24E, 4191131.30N

[1] Model Output at the Maximum Exposed Receptor (MER) based on unit emission rates for sources (1 g/s).

[2] Emission Rates from Emission Rate Calculations (Appendix A - Construction Emissions).

# Table C6
# Berkeley Rose Waldorf School Health Risk Calculations

| Source | | MER | Weight | Contaminant | | | Dose (by age bin) | | Carcinogenic Risks (by age bin) | | **Chronic Hazards [1]** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Conc. | Fraction | | URF | CPF | Students 2 < 16 years | Staff 16 < 70 years | Students 2 < 16 years | Staff 16 < 70 years | REL | RESP |
| | | ($\mu g/m^3$) | | | $(\mu g/m^3)^{-1}$ | $(mg/kg/day)^{-1}$ | (mg/kg-day) | (mg/kg-day) | per million | per million | ($\mu g/m^3$) | |
| ( a ) | | ( b ) | ( c ) | ( d ) | ( e ) | ( f ) | ( g ) | ( h ) | ( j ) | ( k ) | ( n ) | ( o ) |
| **Day Care Receptors - Unmitigated** | | | | | | | | | | | | |
| 2023 | On & Off-Site Emissions | 1.23E-01 | 1.00E+00 | DPM | 3.0E-04 | 1.1E+00 | 3.16E-05 | 1.94E-05 | 1.07E+00 | 2.18E-01 | 5.0E+00 | 2.46E-02 |
| 2024 | | 5.73E-02 | | | | | 1.47E-05 | 9.03E-06 | 3.49E-01 | 7.18E-02 | | 1.15E-02 |
| Berkeley Rose Waldorf School UTM coordinates: 565411.24E, 4191131.30N | | | | | | | | **Total** | **1.4** | **0.29** | | **0.036** |

| | | TK-8 Students | Staff |
|---|---|---|---|
| | OEHHA age bin | 2 < 16 years | 16 < 70 years |
| | exposure year(s) | 2023-2024 | 2023-2024 |
| Dose Exposure Factors: | exposure frequency (days/year) [2] | 180 | 250 |
| | 8-hour inhalation rate (L/kg-day) [3] | 520 | 230 |
| | inhalation absorption factor | 1 | 1 |
| | conversion factor (mg/µg; $m^3$/L) | 1.0E-06 | 1.0E-06 |
| Risk Calculation Factors: | age sensitivity factor | 3 | 1 |
| | averaging time (years) | 70 | 70 |
| | per million | 1.0E+06 | 1.0E+06 |

| exposure durations per age bin | | | exposure durations (year) | |
|---|---|---|---|---|
| | Construction Year | Risk Scalar [4] | Students | Staff |
| | 2023 | 0.75 | 0.75 | 0.75 |
| | 2024 | 0.53 | 0.53 | 0.53 |
| | Total | 1.28 | 1.28 | 1.28 |

[1] Chronic Hazards for DPM using the chronic reference exposure level (REL) for the Respiratory Toxicological Endpoint.

[2] Office of Environmental Health Hazard Assessment. *Guidance for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(f): Guidance for Assessing Exposures and Health Risks at Existing and Proposed School Sites* . Dated February, 2004.

[3] Inhalation rate taken as the 8-hour 95th percentile breathing rates, Moderate Activity (OEHHA, 2015).

[4] Risk scalar determined for each year of construction to adjust receptor exposures to the exposure durations for each construction year (see App A - Construction Emiss